THE MOST IN-DEPTH TEST OF SUPERFAST BROADBAND MODEMS YET

apc

HIGH-PERFORMANCE COMPUTING

APRIL 2007

ADSL2+ MODEMS MEGATEST

Fastest of 20 broadband modems revealed!

TESTED AT 1KM, 3.5KM & 5KM FROM THE EXCHANGE

apc FREE SOFTWARE DVD ROM

APRIL 2007 / Vol 27 – No 4

SOFTWARE / SECURITY / PLAYABLE DEMOS / LINUX

PLAYABLE DEMO

SUPREME COMMANDER

Massive futuristic real-time strategy warfare.

For Windows XP SP2 and Vista.

VISTA UPGRADE TOOLKIT

Everything you need to get your PC ready to roll with Vista.

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- Codecs
- Display drivers
- Media players
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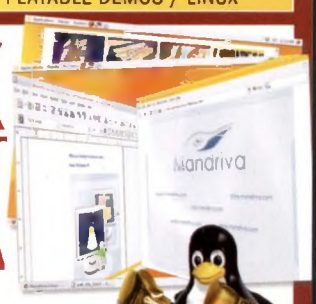
PHOTOZOOM PRO 2

Powerful digital image enlargement tool — trial version. Plus 20% discount offer on BenVista's range of professional and home imaging tools.

Discount offer valid until 1 July 2007.

LINUX HITS BACK AT VISTA



Try out Metisse, the new 3D window manager for Linux that competes with Vista's Aero Glass. Included as a LiveCD based on Mandriva One 2007.

For x86 based PCs. Requires a CD burner.

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PORTABLE GPS DEVICES RATED

TomTom vs Garmin vs Navman vs Mio vs HP

UPGRADE YOUR PC FOR VISTA

We help you decide if you should spec up your system or buy a new one

DREAMWEAVER KILLER TESTED

Microsoft takes aim at Adobe and unleashes Expression Web

INSIDE WINDOWS HOME SERVER

The first server OS for dummies

LINUX SIMPLIFIED

Linux file systems explained

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Grande model shown TOY8271/GA/DPS/APC/R

INTUITIVE NEW CAMRY THE CAR THAT READS THE ROAD

TOYOTA
oh what a *feeling!*

IT KNOWS THE WAY TO GRANDMA'S HOUSE.
IT CAN REMEMBER THE NAMES, ADDRESSES AND PHONE NUMBERS OF YOUR FRIENDS AND NEIGHBOURS.
IT CAN ADJUST THE TEMPERATURE INSIDE THE CABIN.
IT KNOWS PRECISELY WHERE YOU ARE AT ALL TIMES.
IT REALISES THAT YOU ARE WARM-BLOODED AND YOUR SPOUSE IS

The intuitive new Camry Grande could quite possibly know more about the road you're driving on and the way you're driving than even you. Its satellite navigation system knows where you are, where you're going and where you've been. Its Vehicle Stability Control, Traction Control and Active Braking with intelligence can sense when the Camry is losing grip and adjust the brakes and power accordingly. Its rain-sensing wipers can determine the correct pace based on how hard it's raining and how fast you're driving. Its sophisticated VVT-i engine consults with the intelligent 5-speed automatic transmission to maximise power and efficiency. It even has Bluetooth technology for hands-free calling. These are just a few examples of how the intuitive new Camry Grande reads the road. And how Toyota is looking at the world in a completely new way. Go to camry.com.au to discover more.

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openSUSE

When you see this icon throughout *APC*, it means bonus software included on the cover disc.

This logo indicates a free, complete and unrestricted software package, available only on *APC*'s cover DVD.

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APC EXCLUSIVE

PHOTOZOOM PRO 2

Until 1 July 2007, BenVista are offering this month's *APC* readers an amazing 20% discount off the usual price of PhotoZoom Pro 2. This discount offer is also available on BenVista's other products: PhotoMagic and PhotoArtist. See the disc interface for more details on this offer.

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Complete photo package. Correct defects, organise your photos.

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Massive futuristic real-time strategy warfare.

For Windows XP SP2 and Vista.

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apc editorial

TONY SARNO

This month we bring you our annual ADSL2+ modems megatest. We're particularly proud of the depth and science that goes into this. We fly our reviewer to Adelaide to do the testing with state-of-the-art equipment at Internode's test facility. The tests simulate the performance of the modems at different distances from the exchange, and reveal much about the modems that the vendors won't tell you (and which standard testing doesn't reveal). Don't even think of buying a new ADSL2+ modem unless you read this test.

And if you're not buying Vista, we know why. If you've read the press reports after the Vista launch, you'd think Vista was a bust. The learned opinion was: that Vista had nothing new compared to XP (why else would Microsoft Australia's management spend virtually the entire launch talking about how it handles your family snapshots better?); that it was still lacking many drivers (a real problem, particularly with Creative sound cards, Logitech mice etc.); and to top it off, there was the news that in the first week Vista was on sale, it was still outsold by XP. So, the theory went that since Vista sales did not take off in the style of the previous versions of Windows, it was because the OS had not captured the public's imagination. Wrong. I think it's because users had got the message loud and clear: Vista needs better hardware — than what most people have — to run at its best. So instead of rushing out to buy boxed Vistas for their current PCs, many users have simply decided to wait until they've upgraded or bought a new PC.

In our coverage of Vista we've stressed *ad nauseum* that if you want to get the most from Vista, double Microsoft's recommended hardware spec (and we again cover the issue on page 80). Of course, Vista *will* run on a variety of PCs, and that's what Microsoft's silly multiple versions of Vista are about. If your spec is rubbish and you shouldn't be buying Vista at all, then you can buy the Home Basic version, which is basically XP in drag. But if you really want to experience all of Vista's features and gloss, then anything less than Home Premium on a new or upgraded PC won't satisfy any enthusiast. In theory, this should be reflected in stronger PC sales and, indeed, that's what some PC makers tell me is happening. And, it turns out that the best-selling version of Vista so far is Home Premium (same as Ultimate but without the unnecessary business features), proving that users would rather wait and upgrade the PC than buy the bottom-dwelling version of the new OS.

tsarno@acpmagazines.com.au

> USERS WOULD RATHER WAIT AND UPGRADE THE PC THAN BUY THE BOTTOM-DWELLING VERSION VISTA

APRIL AWARDS

We reserve the Editor's Choice award for the very best products available on the market.

***APC*'s Highly Recommended award is bestowed upon products that are of great overall quality.**

Get the latest security tools, updates, and guidance delivered direct from microsoft.com.au/security/IT Malware is taking on new and more challenging forms. Get the latest countermeasures, including links to security expert podcasts and training, with Microsoft® Security Newsletters delivered to your inbox monthly. And get up-to-the-minute Microsoft Security Notifications right to your IM or mobile device. To find out more go to **microsoft.com.au/security/IT**

Microsoft®

How the HD-DVD/Blu-ray hack was done

Got a few days to spare? Know your way around your PC's memory? You too could learn to hack copy-protected, hi-def movies.

A hacker using the handle muslix64 released an open source utility, BackupHDDVD, in late December, which he claimed took just eight days to develop. BackupHDDVD enabled users to remove the Advanced Access Content System (AACS) decryption from a given HD-DVD title, provided that they knew the specific title and volume encryption keys for that title.

In practice, enthusiasts soon discovered that little more than a memory scan on a PC playing back an HD-DVD title was required, since those keys have to be loaded into memory at some point to decrypt the title. WinDVD, widely distributed on Toshiba PCs, is known to be vulnerable to this kind of probing.

A similar tool for Blu-ray DVDs was released in January, and the encryption key for sci-fi movie *Serenity* was the first published, resulting in 20GB torrents of the HD-DVD version quickly becoming available. As new keys are cracked, they are quickly distributed online.

Officials for the AACS licensing group confirmed the usage of data from a PC playback system, noting that "the unauthorised disclosures indicate an attack on one or more players sold by AACS licensees" in a terse statement.

HI-DEF HACKING TIMELINE

December 26 2006
BackupHDDVD released

January 2 2007
Updated version with volume key support released

January 13 2007
Exploit to extract keys from WinDVD software player published

January 15 2007
Two key-disclosing sites launched

January 20 2007
BackupBluRay launched

January 24 2007
AACS acknowledges hack

The AACS standard, used by both Blu-ray and HD-DVD, lasted just twenty months from its publication in April 2005. Under AACS licensing terms, software players that are vulnerable could have their current device keys revoked, meaning they wouldn't be able to play future releases, a risky strategy when acceptance of both hi-def standards is lukewarm at best.

In an online interview, muslix64 noted that the only other alternative would be to have a unique encryption code for every single disc. "It will cost a fortune for the manufacturing, so I'm not sure they will go that way," he said.

Angus Kidman

AMD breaks out on all fours

AMD is poised to release its first true quad-core desktop CPU by the third quarter of this year.

According to memos leaked to DailyTech.com, AMD's desktop quad-core CPU, or "Agena", will launch at speeds of 2.4- to 2.6GHz.

This is the successor to AMD 4x4, which was an early reaction to Intel's quad-core plans. 4x4 is the closest the alternate chipmaker had strolled to producing a desktop quad-core CPU and consisted of motherboards that feature two CPU sockets in which two separate dual-core CPUs can sit.

Although late to the game, AMD loves gloating over its upcoming "native" quad-core CPU, as it was designed from the ground up as a processor with four cores. Intel's consists of two dual-core dies stuck on the same chip.

However, considering quad-core remains ultimately useless in the desktop environment, the question isn't so much which quad-core system to buy, but why?

Nathan Davis

Top five ways to make money online

Whether it's just beer money or for covering the cost of hosting a web site, any money is better than no money, writes *Tim Gaden*.

1 Turn videos into cash. YouTube has announced that it will introduce a profit-sharing arrangement for videos uploaded by users. Based on the number of views each piece receives, the revenue will be generated by an ad mix that includes some shown as intros to the videos. Telstra's WotNext.com web site also offers 50 cents each time your video is viewed on a mobile phone (with the caveat that the end user has to pay $1.)

http://youtube.com/ and www.wotnext.com.au

2 Profit from the ignorance of others. Canny, well-informed buyers can turn eBay bargains into profit by buying stuff cheaply, then writing a better, more compelling description (possibly with the help of auction-listing software) and reselling the items for a profit. People who once rummaged through antique shops now do this for a living, but there's nothing stopping amateurs getting in on the act too.

www.ebay.com

3 Weaponise your web site. Google AdSense offers some revenue in return for hosting ads on blogs and web sites. It's a hard way to make pots of money and will always remain a slow burner, but every few months a US$100 cheque appears. Although you do have to balance revenue with annoying your readers, which would you prefer?

www.google.com/adsense

4 Sell your knowledge. With the demise of Google Answers last year, getting cash for answers got harder, but this human-focused search engine promises US$10-15 an hour based on performance for guiding people to solutions.

www.chacha.com

5 Sell your soul, blog for cash. Microsoft caused a splash late last year by giving ninety US bloggers top-end laptops loaded with Vista as a "goodwill" gift to celebrate Vista's arrival. While this clumsy attempt at viral marketing backfired, blogola is turning into a full-time industry. Big companies are now paying for blog posts. Leave your ethics at the door.

www.payperpost.com

iPhone under attack

Phone manufacturers are fighting back the only way they know how: by stacking on the features, writes *Dan Warne*.

Samsung has unveiled its sexy F700: a touch-screen phone with a sleek interface that also includes a QWERTY keyboard as well as a touch-screen interface. Unlike Apple's iPhone, it's not limited to GPRS/EDGE speed (200Kbit/s).This baby packs 7.2Mbit/s HSDPA (though Australian HSDPA networks are currently limited to 3.6Mbit/s — this phone is not Telstra Next G compatible)

Samsung used Adobe Flash Lite to produce the F700 interface. However, previous phones using Flash Lite have been based on Nokia's Symbian Series 60 OS, which isn't renowned for its usability.

The F700 also packs a ludicrously high-res camera: 5MP, but it'll still be as grainy as hell due to the tiny image sensor. LG has taken the wraps off its Prada KE850 which also resembles the iPhone.

Both companies are staying quiet on the capabilities of the phones. Like most handsets, they promise email and web access, but pundits are still wondering if they'll be good as the iPhone, and its OS X.

Thickness	15-18mm
Data entry	Slide out QWERTY keyboard plus touchscreen
Interface	Flash Lite
Screen	440 x 240 (2.8in)
Email	Yes (probably not full HTML)
Web browser	Yes (details not announced)
Mobile comms	HSDPA (7.6MB)
Wireless networking	No
Camera	5 megapixel
Music formats	MP3; AAC; AAC+; eAAC+; Real
Can run third-party apps	Yes
Included memory	Micro SD slot
Online	http://snipurl.com/1auih

THE (A)PC REVOLUTION

December 1985

APRICOT IN A BRIEFCASE

The trouble with most transportable computers is, apart from being under-powered, they look more at home in the boot of your car than on your desk. Now fortunately, a computer has been designed to fit neatly between the two. The Apricot. In a nutshell, it's a 16-bit desktop computer that folds into a briefcase. Unbelievably, it's more powerful than the equivalent IBM PC.

Olivetti M24SP
Expansion solution
Purchasers of the Amstrad PCW 8256 machines will have one thing in common: they won't be able to get enough disks.
Here is a suggestion for dealing with part of the problem — expand the memory.
If you look inside an Amstrad PCW 8256, you will void your guarantee, but you will also see a strange thing. You'll see a row of empty chip sockets on the board.
These sockets are for memory. Officially, they don't exist, but the machine can be persuaded to look at them with a very small wire added to the circuit board.

DIY UPGRADING

If you look inside an Amstrad PCW 8256, you will void your guarantee, but you will also see a strange thing. You'll see a row of empty chip sockets on the board. These sockets are for memory. Officially, they don't exist, but the machine can look at them with a very small wire added to the circuit board.

CARD CRAZY

One of the advantages of Olivetti's enhanced graphics card is that it works with Olivetti's standard monitors. This is not true of IBM's enhanced graphics card, which needs a new monitor as well as a new card. Olivetti says that only specialised users will want the card, so they can write machine specific software to take advantage of its features.

inbrief

NOW FOR EJECTABLE GPS

In-car GPS is no longer a choice between the car maker's expensive (and often outdated) inbuilt technology and a portable device that suckers on to your windscreen. TomTom has created a sat-nav device that fits into a double-DIN car stereo face plate (and also provides the stereo's control interface). US-based car audio Fujitsu Ten is the first to release the product (not in Australia yet, unfortunately): the Eclipse AVN2210p. Drool.

SLIM DOWN VISTA

If you thought XP was bloated, wait until you install Vista. Thankfully the programmers that brought us the XP-slimming tool nLite have updated it for Vista. The makers of vLite say a trimmed copy of Vista uses 600MB less memory. You can remove Vista components, integrate drivers, apply tweaks and make a bootable Vista CD/DVD (www.vlite.net).

PAYPAL ATTACKS FRAUD

PayPal is planning to cut fraud by introducing a physical security key: it's a small device (that can be clipped onto your keyring) which generates a unique code every 30 seconds. Even if someone gets hold of your username and password, they won't have the code and will be unable to transact on your account. 30,000 of the tokens are being trialled in the US, Australia and Germany, and are available to PayPal members for $7.50 each.

Microsoft's battle for virtual earth domination

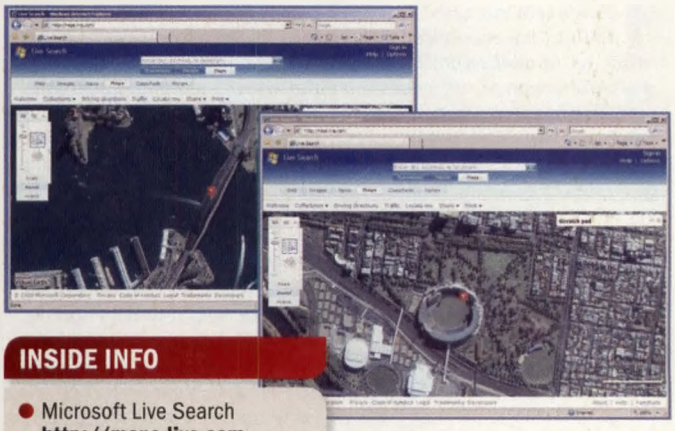
Microsoft's competitor to Google Earth is not half bad, in fact it's better in some aspects writes *Tim Gaden*.

The battle for dominance between Google and Microsoft is not over yet. Stephen Arnold, author of *The Google Legacy*, might claim that "Google is the next Microsoft because Microsoft is the next IBM", but Microsoft still has a few surprises up its sleeve, and its online mapping service, Virtual Earth, is only one of them.

A remarkably good competitor to Google Earth and Google Maps, Virtual Earth even surpasses them in a few areas.

In "bird's eye" mode, its 3D rendering of buildings is much better. Australia has not been mapped for 3D as yet, although searching out Uluru and some buildings in Sydney's CBD gives a small foretaste of the greater coverage that Microsoft promises is "coming soon".

In the meantime, Microsoft's full 3D rendering of many US and European cities shows that Google Earth is lagging in the eye-candy department. The images are remarkably detailed. Users have catalogued amazing images from Virtual Earth on the Bird's Eye Tourist blog, including a cricket match in progress in England and a car accident in Los Angeles.



INSIDE INFO

- Microsoft Live Search **http://maps.live.com**
- Aerial images by category **www.birdseyetourist.com/**

Virtual Earth also offers users a "scratch pad", which is handy for jotting down notes, locations and links while searching.

But the biggest leap forward from Google Maps is more practical. Virtual Earth is much better at parsing Australian addresses and quickly providing driving instructions. It generated a route from the University of Melbourne to the MCG first time, while Google Maps needed six attempts before it could parse the destination.

As part of Microsoft's Live search offering, it also locates businesses and people. The business search found ten pizza shops in Preston, Vic, and mapped how to get to each of them.

Because of the proprietary technology underlying the service, Virtual Earth is only available in Internet Explorer and it requires a download to experience the full 3D goodness. Now that is one area where Google wins out, with full Mac and Linux-compatible Google Earth clients.

YOUTUBE, YOU BLOODY IDIOT!

In February, three young men from NSW found out the hard way that crime doesn't pay.

Perhaps hoping to cash in on YouTube's new profit-sharing deal, they uploaded videos of themselves on a vandalising rampage, trashing trains and private property in Wollongong and along Sydney's City-Cronulla train line.

Without the internet exposure, the trio may have escaped scot-free. Police only twigged when they discovered the videos online.

Even more mystifying, it was not an isolated instance. Apparently it is common for vandals to incriminate themselves this way. "They do like to at times display it and it makes our work, in as far as investigating it, a lot simpler," the police said.

Think *Crime Stoppers*.

Think YouTube.

Tim Gaden

Want to nominate a dumbest moment in tech?
Send an email with the subject line "Dumbest Moments" to dwarne@acpmagazines.com.au.
All correspondence becomes the property of *APC*.

Extreme geek

The Imperator

The case mod strikes back.

When computer modder Antony Winn finished his widely-praised GTRPC (a PC squeezed into a model Nissan GTR), he asked himself, "What can I do to top this?"

The answer is a hand-built computer case in the shape of a *Star Wars* Imperial Star Destroyer which he has dubbed "The Imperator".

The case, which has been over six years in the making, is just over a metre long, made out of laser-cut 1.0mm aluminium and will house a 3.06GHz Intel Pentium 4 processor and motherboard and an ATI Radeon 9800 video card donated by the companies. A Toshiba Slimline 8x DVD drive means that those digitally-remastered 2004 *Star Wars* DVDs are only a few clicks away.

Although the force is with him, Antony freely admits that he sometimes feels he has bitten off more than he can chew. When he began the project in 2001, he had no idea that he would have to learn AutoCAD to do the design and metal-working and plastic moulding to construct and detail the hull.

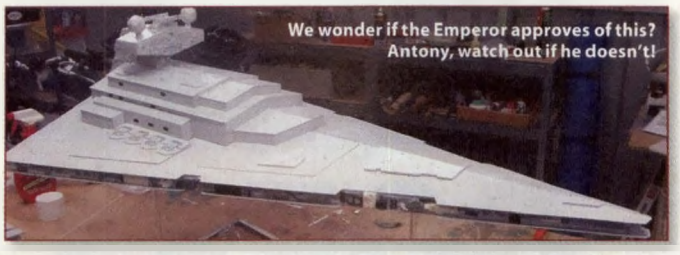
The whole project drips with Geeky street cred, but extra Geek points are provided by two 30-sided Dungeons & Dragons dice which form the shield generators.

Now, the end is in sight. After all those years in the making, it will be finished by the end of this year.

Overall, he estimates that the project has cost $5,000 in materials, another $5,000 in metal working and other tools, and taken thousands of man-hours. He is prepared to put a price on the finished product. If some filthy rich *Star Wars* collector offers him $50,000, he will sell.

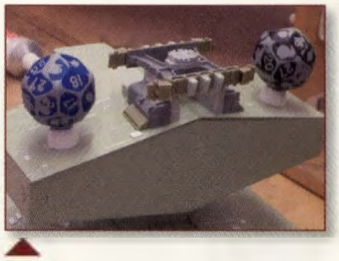
Has he grown attracted to the case mod? "I've priced it so high that I fully expect I will never have to part with it," he says.

Tim Gaden



We wonder if the Emperor approves of this? Antony, watch out if he doesn't!

Check it out at www.overclockers.com.au/~bluesmurf/index.html.



For those who like geek with their geek, here's some DnD for you too.

HOW GEEKY ARE YOU?

Have you wired up your car? Shared your home media library with five family members in three states? Made a 16 terabyte file server? If you've done something interesting with computing technology, *APC* wants to hear about it. Email a description of your project to dwarne@acpmagazines.com.au and include photos (we need at least one of you pictured with your gear). This month's Extreme Geek wins a high-performance wireless router, the Belkin N1. Offering the easiest way to setup a wireless network, N1 lets you share your internet connection with your linked computers. Its significant range and speed improvements over Wireless G make N1 ideal for transferring video, music, and photo files. Belkin's N1 Wireless Router features topside LEDs that make monitoring and troubleshooting easier than ever. The Belkin N1 retails for $279.95. For more detail on the N1, visit *www.belkin.com/au/*

Dream System

Couch potato computing nirvana

With the ErgoQuest 500 computer workstation from Office Organix, there's no need to get out of bed for the fun to start.

The desk, with its built-in, spring-loaded keyboard and mouse tray, hovers over the bed so that even the most activity-challenged couch potato can hop straight into World of Warcraft at the touch of a button.

A keypad provides push button control for the motorised monitor tilt platform and the motorised legs, which can raise and lower the table from 31 to 50 degrees.

The ErgoQuest 500 is fully tricked out to cope with any PC setup you could throw at it. It includes a powerboard with six outlets and the ability to carry up to 180kgs of computer gear on powder-coated steel tubing and heavy duty casters.

An optional LCD arm provides room for up to three monitors for that sensual wraparound experience that is best experienced while horizontal. A telephone tray, also optional, puts home-delivered pizza a short reach away.

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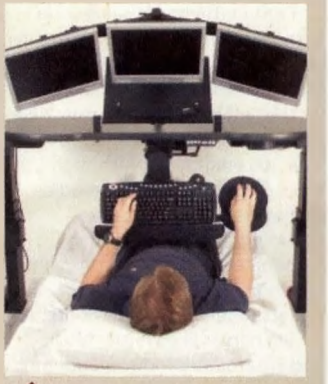
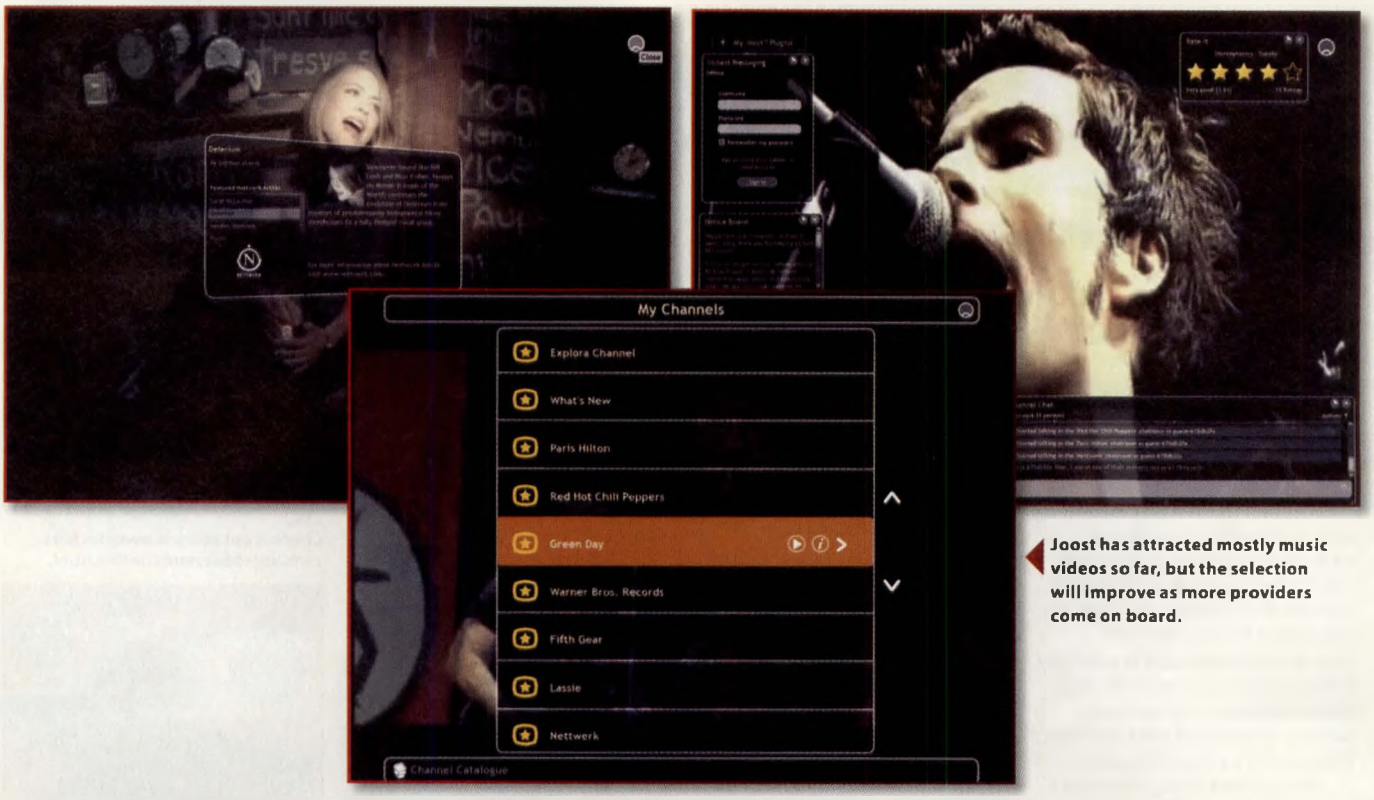
Tim Gaden



We're a little concerned about suspending a PC above our heads.



Joost has attracted mostly music videos so far, but the selection will improve as more providers come on board.

P2P GOES LEGIT

IPTV services choose peer-to-peer in order to solve bandwith issues.

The next few months will see the battle lines redrawn in the IPTV war. Two big names are pushing legal video-sharing services, in the hope that they'll change the way we think about viewing television.

Perhaps the most interesting of these is streaming IPTV software Joost, launched by Skype inventors Niklas Zennström and Janus Friis. It's the first product from their new company, which already supports over 200 employees. Although Joost draws on the technologies that made the pair famous — including the often less-than-legitimate Kazaa — the company is looking to partner with media outlets to secure original content.

Big names like Warner Music and *Big Brother* producer Endemol have already signed up, with integration into the software of strong DRM being one reason; and Joost's instant-on interface the other. By mixing server-based caches with P2P sharing, Joost manages to supply full-screen video at a perfectly acceptable rate, even at peak times.

That said, we're unsure as to how well the service will perform, especially in Australia. Joost needs to attract advertisers, a fanatical following akin to YouTube's, and an audience that's not hindered by capped downloads. With a current estimate of 300MB download and 100MB upload per hour, the latter isn't going to be an easy task, and Joost has virtually no hope if it can't attract big name content. What it needs is *Battlestar Galactica*; what it gets isn't likely to be anywhere near as big.

Britain's BBC is also edging closer to joining the P2P revolution. BBC Worldwide, one of its commercial arms, is teaming with the creator of popular BitTorrent client Azureus to supply its Zudeo HD download service with content. Zudeo's model is the virtual opposite to that of Joost; based on the BitTorrent principle, it offers video files for direct download rather than streaming. Sadly, the BBC's distribution of shows like *Little Britain* and *Fawlty Towers* won't apply to us in Australia straight away, as BBC Worldwide has only worked out the deal for US markets so far.

So will anyone ever get IPTV right? There's no straight answer, but Joost looks like a service that's going to drown horribly unless it catches the one wave in the ocean that could carry it to shore. As for Zudeo, we would rather not have to download a proprietary client just to play the four-minute clips that currently cover it.

THE ENEMY OF P2P

The International Federation of the Phonographic Industry is, somewhat ludicrously, claiming that ISPs must take personal responsibility for the actions of their users, demanding that anyone who even looks like a pirate be thrown off the internet without recourse to any sort of evidence. This would include users of services like Joost and Zudeo, which have piracy-like traffic at their cores. The Internet Service Provider's Association replied that ISPs are a conduit of information, and cannot be held accountable for the actions of subscribers: "ISPs cannot inspect every packet of data transmitted over their networks."

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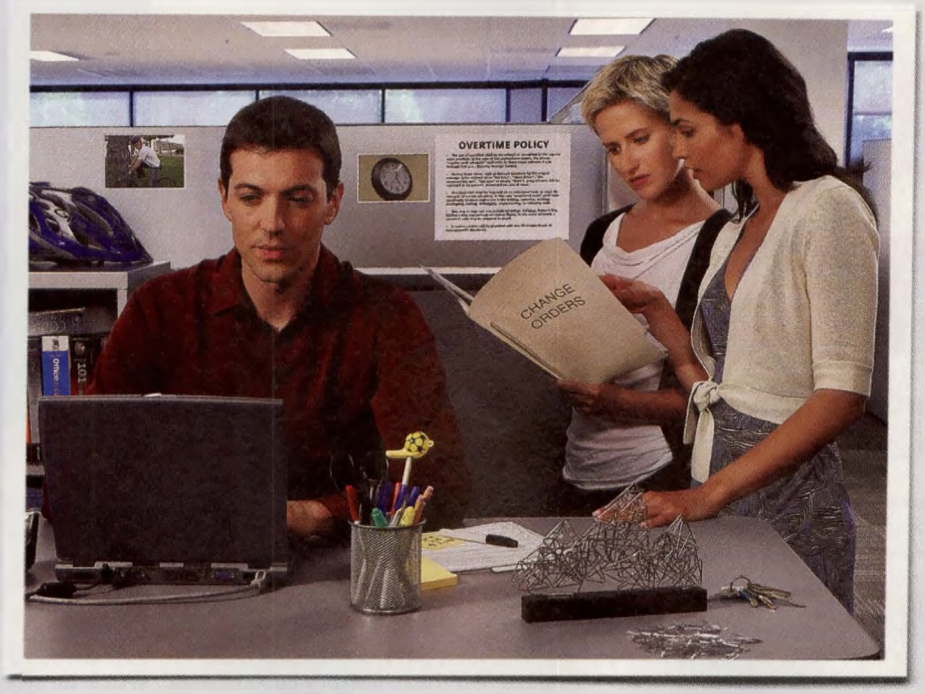

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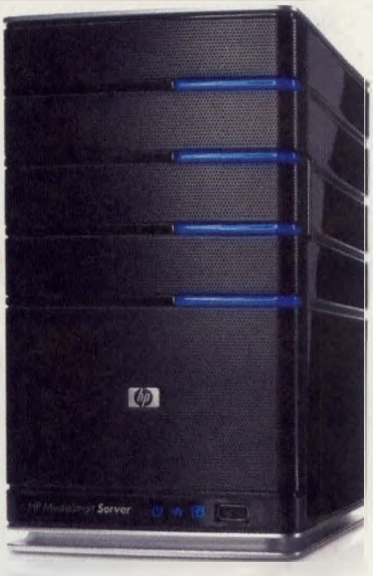
INSIDE Windows Home Server



HP's MediaSmart server

Most family members now use their own PCs, *David Flynn* checks out the new software that will connect them all.

In development for over two years under the codename "Quattro", Windows Home Server will touch down in the second half of this year. Representing an all-new product category for Microsoft, and in many ways for the industry, Windows Home Server is designed to "de-geek" the server and bring its benefits to average home PC users.

This ranges from file and printer sharing to streaming media to PC, TVs and home theatre systems (via the Xbox and third-party media extenders), plus secure remote access to the server over any internet connection.

While there's no shortage of Linux solutions suitable for home servers, none offer the ease of setup, management and hands-free running promised by Windows Home Server — nor the industry partnerships, name recognition and sheer marketing muscle of Microsoft.

"Our target market is any home with broadband and more than one PC," says Joel Sider, Senior Program Manager for Windows Home Server. "This product is aimed at families and everyday PC users who want a really easy way to protect, store and share their digital content."

UNDER THE HOOD

Windows Home Server is based on the core of Windows Server 2003, "but with a number of innovations for storage, backup and the client-facing technology," explains Sider. "The storage technology was developed specifically for this product, to give you the benefits of RAID but with a lot less complexity."

Windows Home Server does away with drive letters and aggregates all available storage, including external USB or FireWire drives, into a single store "pool".

Data is automatically distributed across all drives, with folders mirrored onto a second disk as a precaution against the failure of a single drive.

Unlike RAID, there's no need to use identical drives. When it's time to upgrade the server's capacity you can buy any drive you wish — the biggest, fastest, cheapest or best overall value — the drive's capacity is added to the central store.

HOME SERVER DOES AWAY WITH DRIVE LETTERS AND AGGREGATES ALL AVAILABLE STORAGE INTO A SINGLE STORE "POOL"

The hardware requirements for Windows Home Server match that of an entry-level PC: at least a 1GHz CPU and 512MB of RAM, plus an Ethernet connection to your broadband router to make the server available over a wired or wireless network.

The actual servers are extremely small and have no facility to connect a keyboard, mouse or display — they're controlled entirely through a Windows Home Server Console that runs on any PC hooked up to the network.

The console's friendly Vista-inspired interface allows a nominated "administrator" to configure user accounts and shared folders, manage storage and view the backup and security status of connected PCs. A simple Windows Home Server Connector utility gives each user a desktop shortcut to their private and shared folders on the server.

Third-party developers can create specific software for the Windows Home Server platform. HP's MediaSmart server, for example, will include software to automatically create a password-protected online photo album for family and friends.

"There are a lot of interesting possibilities for web site publishing and blogging, home automation, home security and webcams; even simple things like a family schedule manager," Sider predicts.

Windows Home Server has already entered 'invitation-only' beta testing with the current Beta 2 build. Microsoft expects to reach the Release Candidate stage in May, with final code released to manufacture by the end of June. Windows Home Server systems should be available from August.

While current plans are that the software will be licensed only to Microsoft's home server hardware partners, Sider says that it may also be made available to end users wishing to install on a system of their choice. "There are some interesting possibilities for do-it-yourselfers and system builders, and we're looking into that."

SELF-SERVICE

Each Windows Home Server system supports up to 10 user accounts plus one temporary "guest" account restricted to file and print sharing. There are no domains, nor any Active Directory system to manage users.

Each server comes pre-configured with shared folders named Documents, Music, Photos, Videos, Public and Software, while users each get a personal directory. Of course, you can create new private or shared folders and adjust per-user permissions. Individual and shared folders are indexed by Windows Desktop Search on XP or Vista machines.

Music and video files can be streamed to devices that support Windows Media Connect, which includes Windows XP and Vista machines, the Xbox 360, Windows Media Extender boxes and other WMC-compatible digital media adaptors.

Windows Home Server also removes the burden of backing up — and the consequences of not doing so — from PCs running Windows XP or Vista. (Mac and Linux machines must back up with

REMOTE ACCESS HOME: the main screen for remote access to a Windows Home Server via the internet.

STORAGE: an example of the Storage page in the Windows Home Server Console.

REMOTE ACCESS SHARED: this shows remote access to shared folders on Windows Home Server via the internet

their own software and set a server directory as the destination for the backup set.)

The image-based backup technology uses the same "single instance store" trick as Vista's Windows Imaging and Windows Server 2003. This stores only one copy of any file, and any image containing that file is given a pointer to its location. If an identical file resides on more than one PC — ranging from applications, DLLs and other system files to videos and MP3 tracks — only a single copy is backed up. This drastically reduces the size of each image and consequently the server's overall storage requirements.

Users can perform a full image-based restore PC or browse backups with Windows Explorer to find individual files. Even a crashed system can be recovered by booting from a CD which connects to the Home Server and walks the user through loading the most recent backup image.

Windows Home Server's coolest trick is providing remote access to the server and desktop PCs over the internet.

Microsoft will issue each Windows Home Server customer with a free address based on the homeserver.com domain name, which is then tied to its Windows Live Domain service. This maintains a stateful link to the Home Server, even with the dynamic IP addressing common to most broadband ISPs.

Users can connect to their server though any web browser via a Windows Live portal page and download and upload files in their private or shared folders. One smart touch is that the server can compress large downloads into ZIP archives on the fly.

You'll also be able to log onto your PC (as long as it's turned on) to retrieve documents and run applications, such as reading new email.

The caveat is that with their massive data store, fat broadband feed and 24/7 uptime, servers have always proved tempting targets for hackers. Add the Windows flag and users who will likely know little about IT (and even less about security and the server box) may as well have a bullseye painted on their side. Maintaining security for Windows Home Server users will be paramount for Microsoft.

THE LITTLE BLACK BOX

Unveilled at this year's CES and lauded by Bill Gates during his keynote, HP's MediaSmart is the poster child of the Windows Home Server platform.

While price and launch date are still to be determined, this pint-sized server (it stands just 25cm tall) will run AMD's 64-bit 1.8GHz Sempron 3400+ processor with 512MB of RAM and a Gigabit Ethernet adaptor.

The stout MediaSmart sports four front-loading 3.5in SATA hard disk bays plus four USB ports for external drives or shared printers.

Adding new drives to the MediaSmart is quite literally a snap, says Josh Peterson, product manager at HP's Personal Storage Business group. "You don't need any tools, you don't have to connect any cables, you don't even need to power down the server at all. You just open the bay door, slide in the drive and it clicks into place."

Peterson told *APC* that the company has put substantial work into ensuring the server runs whisper-quiet.

This was one reason for HP's choice of the low-voltage Sempron 3400+ processor codenamed "Manila". Intended for use in small form factor PCs, the chip is rated at 35 watts, which is almost half that of the standard version.

"With low levels of background activity, the processor can step back to its lowest power state of 18-20 watts," Peterson explains, "and if there's no activity, the hard drives spin down and turn off.

"The case is pressed from perforated steel to enhance airflow and convection cooling. To reduce the noise, we've put two large 10cm fans on the back, but set them to turn at a very slow rate, so there's plenty of air movement for cooling — but it's also very quiet." APC

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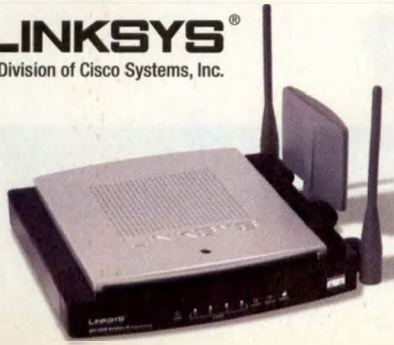

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Deployment heaven

Vista's installation customisation, among other new features in the OS, is providing real incentive to end users to migrate after all.

The new Windows Imaging Format (WIM) is definitely one of the best new features of Windows Vista. Instead of a standard structure of files, WIM offers a self-contained database of files controlled by XML. This gives desktop administrators unprecedented capabilities to customise and streamline Windows Vista installations and makes it far easier to integrate other applications and leverage off existing technologies.

During beta testing, it became clear that WIM was probably the most exciting feature for admins, and with the release of Vista and various imaging and deployment tools, this still looks to be the case. Microsoft Remote Installation Services (RIS) has been upgraded to Windows Deployment Services (WDS) — a component of the Windows Automated Installation Kit (WAIK) — which offers full support for WIM, Windows PE 2.0, custom boot images and lots of other technologies designed to make life easier. WDS is RIS-compatible, so upgrading your infrastructure to handle Vista won't result in losing support for your older systems.

One of the interesting impacts of WIM is that it has shifted the business of deployment and imaging away from servers and onto the local desktop. Business Desktop Deployment (BDD2007) is a workbench application which leverages off Microsoft Management Console 3 (MMC3) and provides a desktop administrator with all the tools needed to set up, configure, customise and deploy Vista-based images. It provides a front end for all the disparate imaging tools — User State Migration Tool (USMT), MSXML, WAIK and the Application Compatibility Toolkit. It also plugs straight into back-end server technologies like WDS so that the admin's work machine can control every aspect of every image available for deployment. This is a phenomenal utility — any administrator will tell you that managing images is a finicky and time-consuming task, so anything which speeds it up and makes life easier is extremely welcome.

Puzzle pieces: Vista's many parts are proving to fit together nicely.

> DURING BETA TESTING, IT BECAME CLEAR THAT WIM WAS PROBABLY THE MOST EXCITING FEATURE FOR ADMINS – THAT'S STILL THE CASE

Home users haven't been left out either. Although all these tools are really designed to be used in a corporate environment, they are all publicly available for anyone to download. Having said that, you'd need a pretty good home network to be able to make the most of them, so third-party programmers are coming to the party with their own lightweight tools for customising Vista installs. One such application is vLite, by the creator of nLite, which is a feature-rich customisation tool for Windows XP.

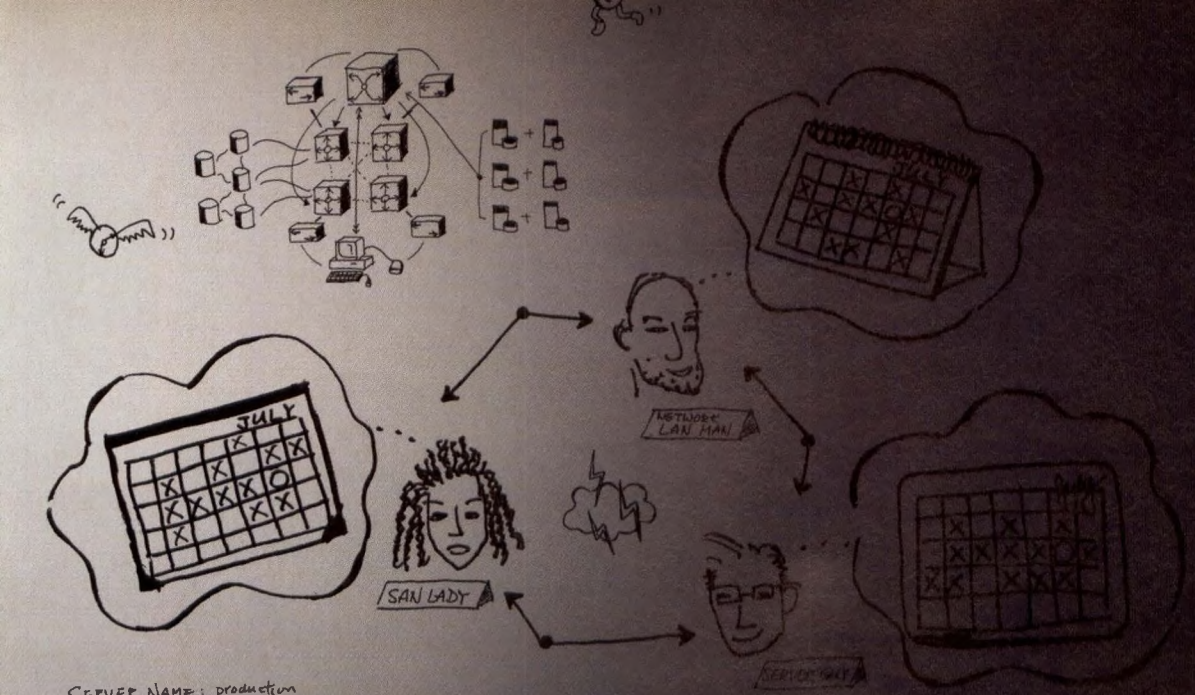
vLite is free and lets you remove components from the standard Vista installation. Almost all users like to customise their systems after a default install, usually stripping out parts which are particularly disliked or simply never going to be used. You can even disable services, get rid of User Account Control (UAC) or prevent support for particular hardware devices or languages from being installed. The more you strip out, the smaller the resulting install will be, and at the end of it all you can burn the customised image straight to DVD (or even CD if it's small enough!) or create a bootable ISO. vLite is still in development so, as time goes on, it will support more and more features to make customising Vista even easier.

This is all rather encouraging actually. During beta testing many people started to wonder whether the benefits of Vista were going to be largely restricted to business users, and home users would just be left with an operating system that was expensive to buy and difficult to run, with no real tangible advantages over Windows XP. Perhaps for many users this may yet prove to be the case, but at least power users and hobbyists can enjoy some of the new, under-the-hood features of Vista. apc

HastalaVista

by James Bannan

James Bannan is a systems manager at St Leonard's College (Vic) and APC's resident Windows expert. He'll be checking out Vista for you every month.



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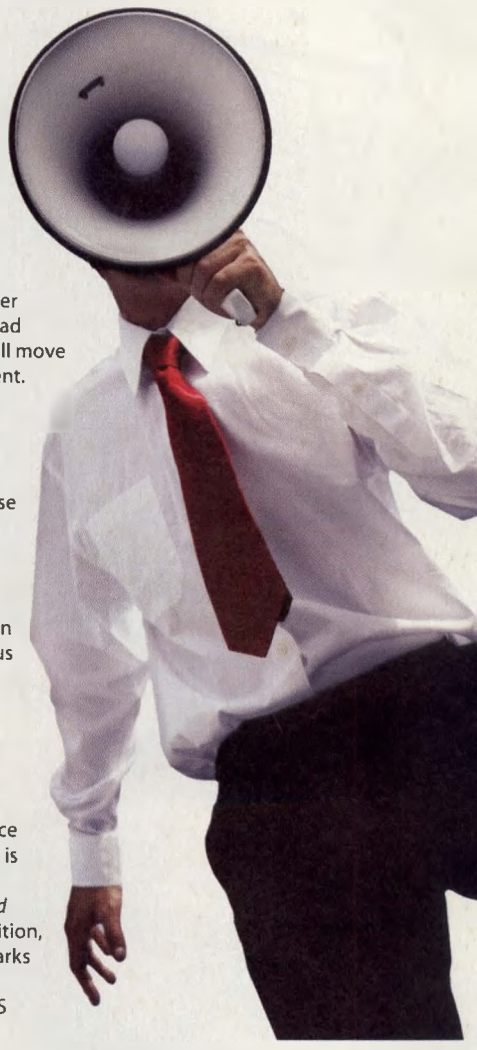
The cult of Tux

There's a difference between being a well-reasoned or passionate advocate for your OS — and being an unwavering fanboy.



If there's one sociological constant about the web it's that personal expression is amplified: behind screens, people say or do what they would never attempt in person — as if the responsibility for their actions is somehow diminished while they're not physically present.

When you add to this mix the vices of arrogance, righteousness and, most of all, *passionate belief*, you get what is singlehandedly the biggest source of forum noise on planet Earth — mindless debate.

Only it's not so much debate, but more disagreement, where two or more parties attempt to change the others' opinion through sheer force of browbeating.

And so it is when it comes to the "OS wars", with various camps championing their perspective on what's best and why you should use it. Unfortunately, these facets are endemic in human nature and, frequently, the bounds by which zealotry is defined. In the online world, we seem to get zealots by the packetful.

For better or for worse (no, make that worse), the Linux camp has its fair share of zealots. Mac users too, for that matter. But not so much Windows (well, unless you're a monkey-dancing Steve Ballmer). For whatever reason, Windows just doesn't inspire that undying passion that Linux and Mac users seem to experience. Which actually isn't a good thing.

Because, as is the way, it's the zealots in their zeal who actually accomplish exactly the opposite of where their passion guides them. You can't force someone to like something, no matter how loud you shout, and trying to only pushes them away.

So a message to the zealots of the OS world, of all camps: we get that you love your operating system; we get that it means more to you than air, food and probably even sex. We get that you believe you are right even when you're not, and we get that you'd love nothing more than the world to align itself to your opinion. Only, that's not life.

The irony, of course, is that a zealot's passion is usually well-intentioned. People become passionate about their OSs because of what they perceive the OS gives them, how much joy they are to use, and how well it enabled them to accomplish stuff on their PCs. They form a bond, where it is sometimes easy to forget that an operating system is a *tool* — no more, no less.

But the more emotionally someone argues, the less validity their arguments hold. Ultimately it's the zealots who — while being the most vocal and driven — contribute the least to spreading facts and information about the very things they believe in. It reminds me of a saying from a colleague — the difference between rats in a maze and humans is that, after butting its head against a dead end enough times, the rat will move on and try something different.

So, if you're an active advocate, a passionate supporter, a vocal spokesperson and you absolutely love the OS you use — we get it. Talk facts and benefits, not emotional attachments; real-world examples, not fluffy pillow talk. Advocacy is potent when done properly, and poisonous when it's not. This goes for Linux, Mac and Windows. And yeah, even those more esoteric operating systems too (Plan 9 anyone?).

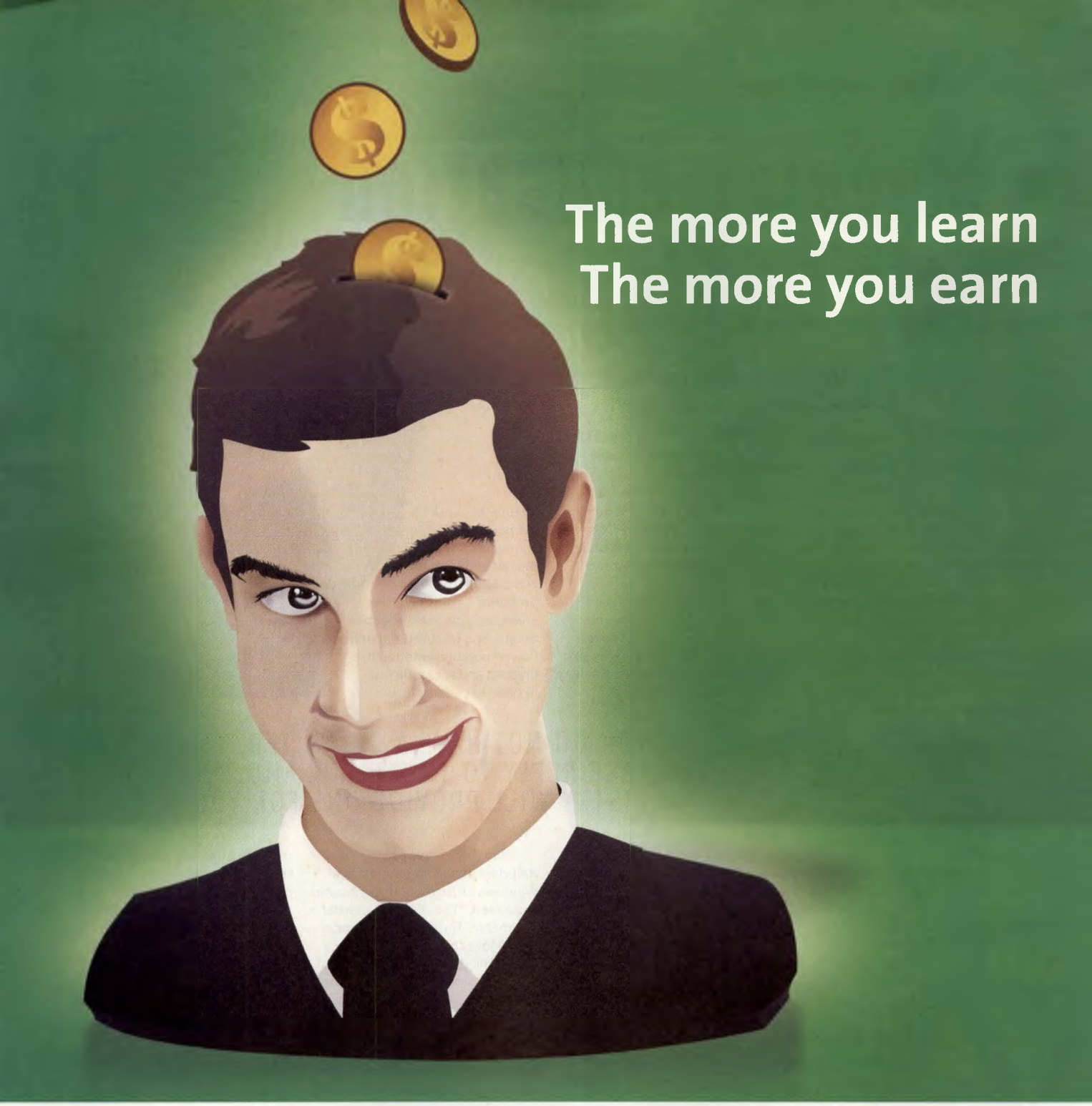
And finally, if this is you, remember you won't convince everyone, because everyone is different. So don't try. And consider that choice is a *good* thing. It encourages competition, fosters development and sparks innovation. There would be nothing worse than a one-OS world. EOTC

> IT'S THE ZEALOTS IN THEIR ZEAL WHO ACTUALLY ACCOMPLISH EXACTLY THE OPPOSITE OF WHERE THEIR PASSION GUIDES THEM

LinuxWindow

by Ashton Mills

Editor of the **Linux Pocketbooks** *series, and more recently* **Atomic** *magazine, Ashton has been a tech journo for over 12 years, including five years with* **APC**.



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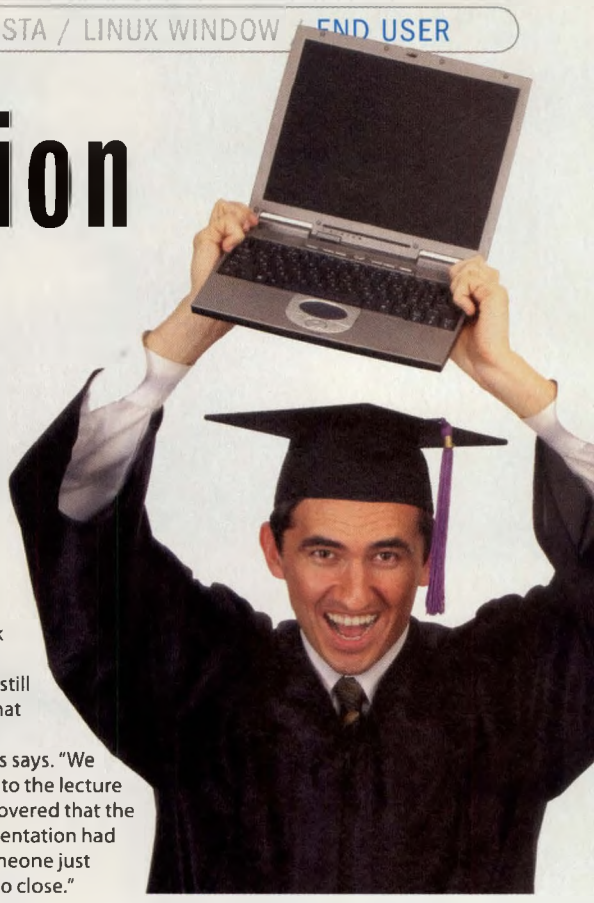
Computer education sadly lacking

Universities are the last place you'd expect to find dumb end users. But judging from our readers' emails, they're a breeding ground (just like hairdressing salons).



Two senior staffers at a major New Zealand university were confounded by the question of what came first: PC or email. Observing this was reader Alistair Campbell and his wife Pat, from Lincoln, who both worked at the university.

They recall the university registrar getting into a lift with a Head of Department (HOD), the conversation between the two going something like this:

"Why haven't you replied to my memo?", the registrar said.

"What memo, you haven't sent me one recently.", replied the HOD.

"I sent it to all HODs."

"How did you send it?"

"By email, of course."

"Well that explains why I never received it. I don't have a computer. I have better things to spend the department's funds on than a computer just to receive your memos. If you want me to have a computer to receive your memos, you can buy me one." (It should be noted here that while all HODs were given an email address, the policy did not extend to ensuring each had a computer.)

As a result of this discussion, the registrar then sent a memo to all HODs. "If you do not have a computer for your own use, please reply to this memo and the Registry will provide one for you."

IF YOU DO NOT HAVE A COMPUTER, PLEASE REPLY TO THIS EMAIL AND THE REGISTRY WILL PROVIDE ONE FOR YOU. . .

And how did he send it, asks Alistair? By email, of course. No Kiwi jokes please, as the following ones from Australian unis are worse.

LECTURERS IN TROUBLE

Andrew Collins works at a university (name withheld) and has several stories of lecturers with no tech savvy. In one, he recalls getting an after-hours call to tech support from a lecturer complaining that the screen on the computer had gone black. "After getting the lecturer to check the power and connections we still did not know what was causing the problem," Collins says. "We ended up going to the lecture theatre and discovered that the PowerPoint presentation had finished and someone just needed to click to close."

Then there was a call to Helpdesk explaining there was a Windows XP logo bouncing around the screen. "The client asked what this meant. The helpdesk operator said, 'Move the mouse'. The client then replied, 'You're a champion, it worked!'" Andrew has other similar stories, but we think this is enough!

GLARE ON THE BRAIN

Reader Jay Connor, a desktop support technician at an Australian university, had to move a computer to a new office for a client. He recalls: "After setting it all up, the client asks how they can reduce the glare on the monitor. I walked over to the blinds and closed them. My clients are smart."

BAD HAIR DAY

Reader Aaron Wells made a terrible error of judgement a few years ago. He naively agreed to be the unofficial (and unpaid) occasional tech support person for a friend's hair and beauty salons. "Silly of me,

EndUser

from The readers of *APC*

APC readers who deal with new computer users or incompetent IT administrators share their survival stories.

Storing your files in the trash again? You're in line for a promotion!

How many hairdressers does it take to send an email?

I know," he says regretfully. "I was dealing with beauticians and hairdressers. Though they may be clever in their own fields, they were good examples of people who don't adapt well to IT.

"One occasion that stands out is when I was on the phone helping one of them use Outlook Express. I repeatedly asked her to access the Tools option in the top menu bar. After giving many, many instructions to go to the 'very, very top of the screen', and listening to her descriptions of what she could see there, I realised that she was only looking at the top of a pane, and not the top of the window."

Aaron eventually had to resort to step-by-step instructions.

"Now reach out and place your finger against the glass screen. OK? Now move that finger upward until you hit the beige-coloured plastic at the top of the glass. You're there now? OK. Now, what do you see under your finger?"

She replied, "Ohh! That menu up there!"

We can laugh, but Aaron makes a very telling point, saying: "We like to help our friends, but if they're making money from the very business that we're helping them with, we shouldn't do the work for free."

And another: "Why is it that our computer work is seen by the uninitiated as being easy and of little value? Friends don't hesitate to ask me to spend hours rebuilding systems or fault-finding for them, but I receive incredulous looks if I ask them to do token amounts of plain old house work, yard work, mechanical work or painting for me in return."

And no, he never got a free haircut for his trouble.

MISSING KEYBOARD

If you think being unable to find the top menu bar in Outlook Express is bad, not being able to find the keyboard on a notebook is even worse. Jim Dumay, a network administrator with Kempsey Shire Council in NSW, recently purchased a new Toshiba laptop for an employee. "When it arrived, I set it up on the network, packed it into the laptop bag with a new mouse and left it for him at his desk," Dumay says.

"Later that day, he rang and asked if we could transfer quite a bit of data from his old PC to the new laptop, so we organised a time that suited both of us. While the data was being transferred, he asked quite seriously: 'Does the laptop come with a keyboard?'"

Dumay thinks the user assumed notebooks came with separate keyboards and may not have noticed it already had one built in.

CHARGING ITSELF

There's something about notebooks that obviously stumps some people. Mathew Crothers, a technical services manager for a computer company in Deniliquin NSW, went to work early one morning to catch up on paperwork and found a very irritated customer at the door. "I reluctantly let her in and she began to tell me how her laptop that she had purchased the day before was faulty and would not turn on. I took the laptop from the customer and pressed the power button. I noticed that the battery warning light flickered on. I took the power adapter, plugged it in, and, to the customer's astonishment, the laptop booted.

"She still believed that there was something wrong with the laptop, because she was told the laptop would charge while she used it and she had been using it for about two and a half hours the night before. I had to calmly explain to her that for the laptop to charge while she was using it; it had to be plugged into the wall."

YOUR WORK IS TRASH

We've heard of strange places to store your files, but this is the pits. Jason Peake was working for Sensis (Telstra), as the team leader for the Windows XP rollout across Australia. In an Adelaide office, one of the staff didn't want to be upgraded, telling Peake: "My work is very important and can't be lost!"

Peake says he reassured the individual and other staff that he had upgraded over 1,000 machines across the country and had not lost anyone's data and all would be fine.

"Sure enough, after I completely wiped her machine, she storms across the room yelling, 'All my work is gone!' Her screaming got louder as I tried to get more information from her. This eventually brought the senior manager out to see what the commotion was. 'He lost all my work!' she yelled. The manager stared at me with that, 'You're about to be sacked' expression.

"So I politely asked her again where she stored her data. 'In that little bin on the desktop!' I looked back to the manager and said, 'I'll let you deal with this one', and walked away." APCMAG

WINNERS!

This month's published readers win a Microsoft Wireless Laser Mouse 6000 worth $129.95. Made for desktop PCs, it features Microsoft's high-definition laser technology with ultimate precision and smoother tracking and responsiveness (even on unique surfaces). This mouse includes a new magnifier tool and a tilt wheel, making navigating, viewing and editing easier. The Microsoft Wireless Laser Mouse 6000 delivers comfort and superior control to the desktop in a high-end style that will turn heads.

SEND US YOUR CONTRIBUTION AND WIN A PRIZE!

Send in your tales of woe involving dumb end users or incompetent techies to ***apcenduser@acpmagazines.com.au*** and if we print it, you'll win a prize. You must supply contact details in order for us to verify your contribution.

Watchdog
eyes on vendors

Credit where it's due

Two's company (three's a crowd). Sometimes software and hardware aren't the only things that are incompatible...

I purchased McAfee Internet Security Suite, and, ever since installing the software, my computer has had a number of problems. I have contacted McAfee tech support many times and followed their advice; however, the problems still remain: significant slowing of web browsing, inability to send emails due to prolonged scanning of out-bound emails (even when this function had been turned off) and slowing of other programs such as Word etc. McAfee agreed to a refund, after some resistance, but then said I should take the product back to the shop and get a refund from them instead.

So, I accordingly asked Metro PC (my retailer) for a refund; however, the manager initially refused to take any responsibility, saying that he was only selling the product. He later agreed to exchange the product, but has since been claiming that he must obtain a RA number from his supplier, Ingram, in order to facilitate the exchange. It has been well over a month since I first went to Metro PC, and I am still left without any resolution.

Noriko Kawasaki
Melbourne, Vic

APC invited Metro PC to comment on Noriko's issue:

Dear Watchdog,
We received the RA from Ingram; Noriko popped in the next day and the problem was sorted. As I pointed out to Noriko on several occasions, it can take several weeks to acquire an RA from Ingram — and that was what transpired. My issue here is that, as a dealer, you are quite often the "meat in the sandwich", and the lack of help and support you quite often get from companies like McAfee and Logitech (and, I am sure, several others) is sad.

You see, if we just refund the customer with a smile on our face then she leaves happy... but if our supplier tells us, "sorry, can't help", why should the poor old dealer be the one left holding the baby, so to speak?

I note that several of your articles in relation to this always seem to paint the dealer as the bad guy. It is usually not that clear-cut, guys — most dealers find the help they receive from their suppliers leaves them with no comeback, and sadly most customers tend to leave out certain details that would allow most educated readers to say something along the lines of: "Ahhh, but now we see the bigger picture; we can see why Big Bad Dealer X did that."

Mike O' Brien
Sales Manager, Metro PC

Noriko confirmed that the matter had largely been resolved, having managed to obtain a $70 credit with Metro PC for future use. She said, however, that she wasn't "100% happy with the way the matter was handled. Firstly, I would have preferred a full refund, as I am quite fed up with Metro PC, and do not want to deal with them again. Secondly, I am dissatisfied with McAfee for releasing such a problematic product (I am only one of many to have experienced major PC slow-down) and for not having the appropriate measures to solve this common problem. The only positive thing is that I learnt neither McAfee nor Metro PC is willing to take responsibility for their products. I will not use either in the future (I will of course use up the credit first though)." However, shortly after this conclusion, Noriko was contacted by McAfee, who were requesting further details in their continuing attempt to secure her refund. McAfee's version of events ran:

Dear Watchdog,
McAfee has endeavoured to resolve this issue since receiving the first call for support from Ms Kawasaki. According to our records, we received a fax from her indicating that Metro PC refused to provide a refund for the software unless McAfee took responsibility for the cost (due to the opened box). In reply to this, we requested more details from Ms Kawasaki about the retailer, in order for us to escalate her refund request to a higher level. However, we did not receive any further response from her. Since the breakdown in communication occurred, McAfee has re-contacted both customer and reseller.
The issue has now been resolved with both parties: Ms Kawasaki has received a refund and Mr O'Brien has received an apology from us for not returning his calls more promptly.

Monica Kelly
Director of APAC
Consumer Sales, McAfee

Noriko wasn't convinced — maintaining that it had taken over two months for McAfee to respond satisfactorily to her complaints of software incompatibility: "The matter has been resolved; albeit not thanks to McAfee. I feel that it was Metro PC and I who managed to come to a workable agreement (the credit), and that McAfee had no role in resolving this issue. Thankyou again for investigating. It was interesting to note that you managed to get a response from McAfee straight away, when Metro PC had failed to do so despite many attempts."

ANARCHY IN THE UK

Tim Rippon of Stockwell, London, purchased a Toshiba Qosmio G10 laptop while in Braybrook, Vic. Tim was careful to take up the option of a Toshiba extended three-year warranty for $195 with his retailer (Clive Peeters). However, upon relocating to the UK, the laptop's hard drive started to play up. "When I spoke with Toshiba they told me that the laptop's 12-month warranty had expired and that I would either need to prove I had the extended warranty or get it repaired out of warranty."

Upon investigating with Clive Peeters, Tim discovered he had not purchased an extended warranty after all – despite checking at point of sale. "Now I am left with an unrepaired laptop and have been sold a product that was not what I believed it to be... Toshiba has given me no assurance that I will be able to purchase an extended warranty, having passed the initial 12-month warranty period." Eventually, after much wrangling with Toshiba, Tim was able to successfully negotiate with the company, who "without any admission of liability and as a once-off goodwill gesture" offered him an option to purchase a two-year extended warranty to cover the laptop "for repairs in the UK and other countries where Toshiba has authorised service centres."

Watchdog invited the company to comment on the warranty issue. Kristie O'Dwyer, public relations manager, had this to say: "Toshiba considers customer service to be a first and foremost priority, which is evident in the fact that the issue was resolved to the reader's satisfaction. Toshiba channel partners are selected because of their strong customer service and mobile computing experience – but independent retailers which retail products from different manufacturers have their own trading terms outside of Toshiba's control. Toshiba strongly urges that all customers clarify the terms of their purchases (including warranties) at point of sale, and confirm pertinent information via *www.isd.toshiba.com.au* or 1800 021 100."

Have you got what you paid for? Toshiba urges customer caution...

A SWITCH IN TIME

This is utterly appalling. On 1 December I contacted AAPT and signed up for home phone and broadband services. They promised phone connection within the week and modem delivery the next... *but* the phone still hasn't been connected (as of 20 December). And, they didn't even bother to tell me that there was a problem. Afterwards, they said that the phone service was still connected in a previous tenant's name and that I had to fax my lease to them so they could fax it to Telstra (so Telstra can switch it off, and Telstra takes up to 10 days!).

Now they say the phone is *scheduled* to be connected today (but I can't confirm that yet) and they say they can't tell me my phone number yet — and *after* the phone is connected they can organise broadband and the modem.

I keep asking them if there is any way to speed all of this up and I politely point out how long it has already taken (and tell them this is unacceptable) and they say, "I will see what I can do". Heaven help any customer who isn't sensible, informed and assertive.

Christine Nicholls
Cambridge Park, NSW

I KEEP ASKING IF THERE IS ANY WAY TO SPEED ALL OF THIS UP – HEAVEN HELP ANY CUSTOMER WHO ISN'T SENSIBLE, INFORMED AND ASSERTIVE

We contacted AAPT and asked the company to investigate Christine's complaint and get back to us:

Dear Watchdog,

AAPT has a robust process to connect new customers to our services. These processes are in place to streamline connection times and to provide customers with protection in case of identity theft or fraud. We initially anticipated Christine's connection to be straightforward and communicated this to her. However, as it transpired, this was not the case because of three separate issues: a pre-existing service needed to be disconnected (which takes ten business days); a technical line fault in Telstra's network (which took three days to resolve); and the need to confirm that Christine was the tenant (completed overnight). In addition, we were unable to reach Christine directly on her mobile (her preferred method of contact) to advise her of these issues and the resulting delays. Christine was connected as soon as these issues were resolved on 5 January. We understand the frustration this situation caused for Christine and, as an immediate action from this case, AAPT has reviewed and updated our customer connection process to improve the service we provide our new customers. We would also like to thank *APC* Magazine for highlighting this issue to your readers. It's important for Australian businesses to be given the opportunity to receive feedback with a view to improving their processes. We've done just that and have made recommendations for system improvements to avoid this occurring again.

David Havyatt
GM Public Affairs, AAPT

watchdog@acpmagazines.com.au

Has an IT vendor or telco stuffed you around? Let us know about it and we'll chase them for a solution on your behalf. Letters sent to watchdog@acpmagazines.com.au must include the writer's full name, street address, suburb, state and phone number to be considered for print publication (please also include details such as invoice numbers and people you've spoken to). Address and phone details will not be published. All correspondence becomes the property of *APC* and is subject to editing.

Epinions
have your say!

OH $AY CAN YOU $EE

The United States of America, a place of *opportunities*, the land of the *free*, the land with the *opportunity* to get a *free* copy of Office 2007. Hundreds of Americans have a chance to snatch up a complimentary copy of the shiny new Microsoft Office Professional 2007 by simply watching a few webcasts on the Power Together web site (**http://powertogether.com**) or by attending a Ready For a New Day launch in any given US state. Who knows why Microsoft has decided to give away thousands of dollars' worth of their products? Personally, I don't really care. What I do care about is that *I* miss out, *Australia* misses out and most of the *world* misses out. After contacting Microsoft Australia, I received an email saying "there is no plan to launch a similar offer in Australia at the moment. If Microsoft Australia decides to launch a similar offer for Australian citizens in the future, it will be announced on the official Microsoft Australia web site." Translation: "tough luck." So, if you want premium software, expect to a pay the premium price. The rest of the world is proud to subsidise free software for Americans.

Sam Tucker
Patterson Lakes, Vic

THE SLOW KIDS

It isn't just New South Wales students that are fed up with their education department's internet. Up here in Queensland, Education Queensland has the most ridiculous policies on use of computers and the internet. Currently we use MIS (Managed Internet Service) to check our *heavily restricted* email accounts; if you create an account on Outlook, it only works on one computer. Just to get to the MIS login page (**http://webmail.eq.edu.au**) takes at least four minutes. To log in takes another six minutes and to read or compose a message takes two minutes (don't ask about adding an attachment). All of these things I can do at home in less than 1.5 minutes on ADSL2+. As well as the problems with MIS, we have to contend with extremely restricted user accounts that won't let you access *any* MP3 or MP4 files — this is because Media Player will only let you play WMA files (another restriction). EQ's internet should receive an award for being the slowest in the world. Just downloading a 10MB PDF file takes at least 15 minutes (that's when you can find one that isn't restricted). You can't access Google Images, Hotmail, Yahoo! Mail or download anything that isn't a picture (even then they try to stop you from doing so). Basically, the only way to do anything without being a snail is to buy wireless

Who is that masked man? Rob from SA goes *incognito* to deal with Dell support.

letter of the month

YOU GET WHAT YOU PAY FOR

I often lament as I read the reports of abysmal customer support from the major PC vendors. As the proprietor of a recently closed small business supplying PCs and service, I routinely spent significant time sitting with enquirers to analyse their needs and quote the best configuration/performance/value combination for their individual requirements.

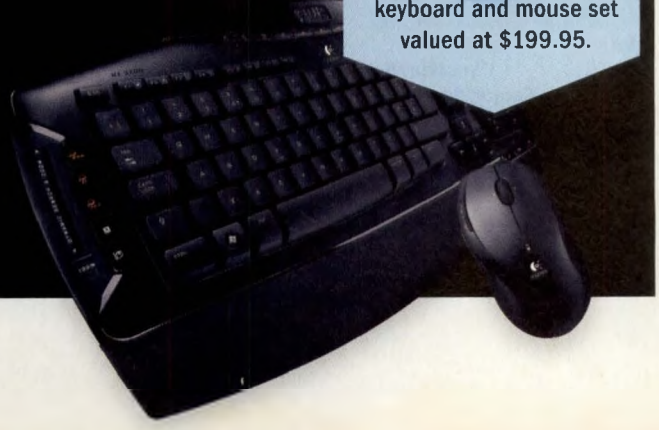
Very few clients came back with problems, since the machines were a good match – and I set each one up with what the client wanted and needed before delivery (and then personally installed their PCs in their homes).

Many enquirers, however, ended up buying mass-produced machines from the big advertising chains, sometimes for as little as a $35 saving – and ended up doing their own installation and running into the service "brick wall" of retailers who just didn't want to know. When will customers realise that backup support is as much a part of a PC purchase as the hardware? The lowest price almost always means dealing with the supplier who buys with the biggest bulk discount (and cuts his after-sales costs to the lowest level ie. reduced choice and service to the end user).

My only profitable choice was to start buying in bulk and recommend what I had rather than what the client needed – and outsourcing support. I wasn't willing to do that. Service costs: if people aren't willing to pay for it, there seems to be plenty of vendors willing to un-bundle it for the sake of another sale.

Glen Thornley
Nairne, SA

Glen wins this issue's Letter of the Month prize, a Logitech Cordless Desktop MX 3200 Laser keyboard and mouse set valued at $199.95.



The "wow factor" or the "WoW factor"? Are *APC* staff writers *really* living in a magical, mystical fantasy land?

broadband and bring your own laptop, which some schools don't like. In these days of modern technology like ADSL2+, wireless networking (which they don't have), dual-core computers and blogs, I am sure they could at least give us a break and remove these speed restrictions.

Alistair Drake
Alexandra Hills, Qld

MASTER OF DISGUISE

Dell tech support: I spent over six hours being treated like an idiot and was asked questions like, "OK, now when you look at the modem... can you see any scorch marks?" The support team asked me to do things like plug my modem into another PCI slot to make sure that the motherboard wasn't at fault. The killer was when they told me that, to be sure that it wasn't a software-related problem, I needed to re-install Windows. I no longer have to deal with situations like that because I've finally worked out the key: now I call up and tell the support staff that I have been called in as a computer technician and have identified the problematic hardware (and my calls rarely take over 10 minutes, excluding the hold time). I just wish I had discovered this trick earlier.

Robert Hopkins
Adelaide, SA

OVER THE VISTA

I for one will not be rushing out to buy Vista. I've been using the beta for several months and, apart from increased security and a "pretty" new skin, there is no real benefit for an average user that I see. The hardware requirement is much higher, so the first thing the user will notice is a performance slow-down. The Australian price is a rip-off. I would buy it from the USA (as I suspect many savvy users will do also). Windows XP is now a "mature" operating system and allows me to do everything I need to do with ease and reasonable reliability (although it still has nothing on Apple OS X or Linux). Vista will no doubt put users through months of hell in the months after release, until all the bugs and incompatibilities are fixed up by Microsoft — as well as by all the hardware and software vendors.

Rod McLaren
Mooroolbark, Vic

A REQUEST FROM OVERSEAS

I am a blind PC user residing in the UK and would like to communicate with blind PC users in Australia, with a view to swapping experiences of computer use. Are there any blind societies I could get in touch with? I really think the exchange of information would be most rewarding to both parties. Could you please publish this in your magazine?

David Miles
Ipswich, UK

APC FANTASY LAND!

Now don't get me wrong, I love *APC* Magazine. I do, however, have some misgivings. In *APC* February 2007, you gave us the Vista Upgrade Superguide. Again, fine, with the exception of page 65: "The Ideal Vista PC". Here you have parts that sell for over a thousand dollars per item. This to me is fantasy land, pie in the sky-type issues. The greater mass of us are not going to fork out for a $3,500-plus computer when it will be superseded within three to six months. What I'm asking is to be communicated to in the real world — not in the fantasy world. (All the same, I will be taking your advice and will get another gigabyte of RAM for use with Vista.)

Gene Brown
Traralgon, Vic

ALL YOU CAN EAT

I wonder how many other Optus ISP customers are as peeved as I with their new home page portal, with its download allowance gobbling bling and ads overdose, force-feeding us with 30 second intros on every film clip. And the Live ID you just have to have to get into this "Zoo". (An appropriate name for a contrived collection of megabyte-sucking parasitic applets.) If this is "innovation" or "progress", then bring back CPM (that's the pre-Microscum OS for all you post-GUIs). What's with all this bloatware? What happened to lean and efficient code? It is about time to start the revolution and line some of the perpetrators up against the wall, like the purveyors of prolific profitability that bring us VISTA (Vastly Inflated $ To Acquire): the same crap in a shiny new bucket that we all just have to have.

Christopher B Grimes
Taylors Lakes, Vic

epinions@acpmagazines.com.au

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APC READERS DUKE IT OUT WITH TELSTRA ONLINE

"Oh, you'll pay..."
Sol Trujillo, CEO, Telstra.

APC readers had their say when Telstra tried to slip a broadband price-rise past them.

When Telstra jacked up its wireless broadband prices unexpectedly just four months after launching the service, its explanation was, "This pricing reflects the fact that it's the best product on the market for wireless broadband. If you want to travel first class, you'll be prepared to pay more. "

Telstra also slashed the value of its signup promotion for new customers from 12 months of a two year contract at half price, to a mere six months of a three year contract. Telstra's explanation? "It's just part of the terms and conditions of the offer, just like the lifecycle of a laptop."

APC readers weren't impressed with Telstra's arguments, engaging in fiery debate with BigPond spokesman Craig Middleton online.

"Have they lost their minds? Is this the best way to react to falling profits? I was close to a Next G card purchase, but now I'll go without or go elsewhere," wrote *APC* reader ThomasR.

Another reader, "Tin", thought a visit from The Chaser's Surprise Spruiker was in order.

"I'd love to see The Chaser's Surprise Spruiker down at the Telstra head office.... I imagine something along these lines: *It's Telstra's mid quarter price rise madness week. Prices must increase as we've just realised that we're a monopoly. That's right shoppers. If you want to use a phone or internet, you'll be paying through the nose for Telstra's overpriced, overrated, overcrowded services.*"

Telstra's Middleton responded, "monopoly shomopoly" and said, "One day you'll notice that noone else is building these networks. Plenty of hot air, press announcements, talk and hands out for taxpayer subsidies — but no holes in the ground or towers going up."

Middleton found a sympathiser in "Manettas", who wrote, "Every arsehole wants something for nothing. Multiply that by a million and you have Telstra's challenge."

But "Raindog" fired back with this: "I don't want something for nothing and I sure as hell hate paying too much for something that is second rate."

A reader posting under the handle "B" had the final word: "...this is what Telstra does when it has some competition in a particular market (wireless internet). Imagine what Telstra would do in a market with less or no competition at all; the relative price increases would be higher still again.

"This just goes to prove that Telstra are not the kind people they make out. They will say all sorts of stuff about acting in the interests of Australia in terms of building infrastructure, but as is clearly demonstrated by Telstra's attitude here, will call anything they exclusively provide a premium product and charge the earth for it. Clearly that is Telstra just looking after Telstra."

ALSO ON APCMAG.COM RECENTLY

DUAL-BOOT SUPERGUIDE
Step-by-step instructions on dual-booting Vista, XP and Linux. So easy your grandmother could do it.
http://apcmag.com/node/5162/

MICROSOFT SERVES MALWARE
Microsoft has apologised for serving malware via MSN Messenger and its web site network.
http://apcmag.com/node/5382/

HOW APPLE COULD CRUSH DELL
Windows PCs where all the drivers can be automatically installed after a fresh Windows install with a single tool.
http://apcmag.com/node/5359/

VISTA COMPATIBLE SOFTWARE LIST
Bowing to public pressure, Microsoft has finally released a list of software that's certified to work with Vista.
http://apcmag.com/node/5462/

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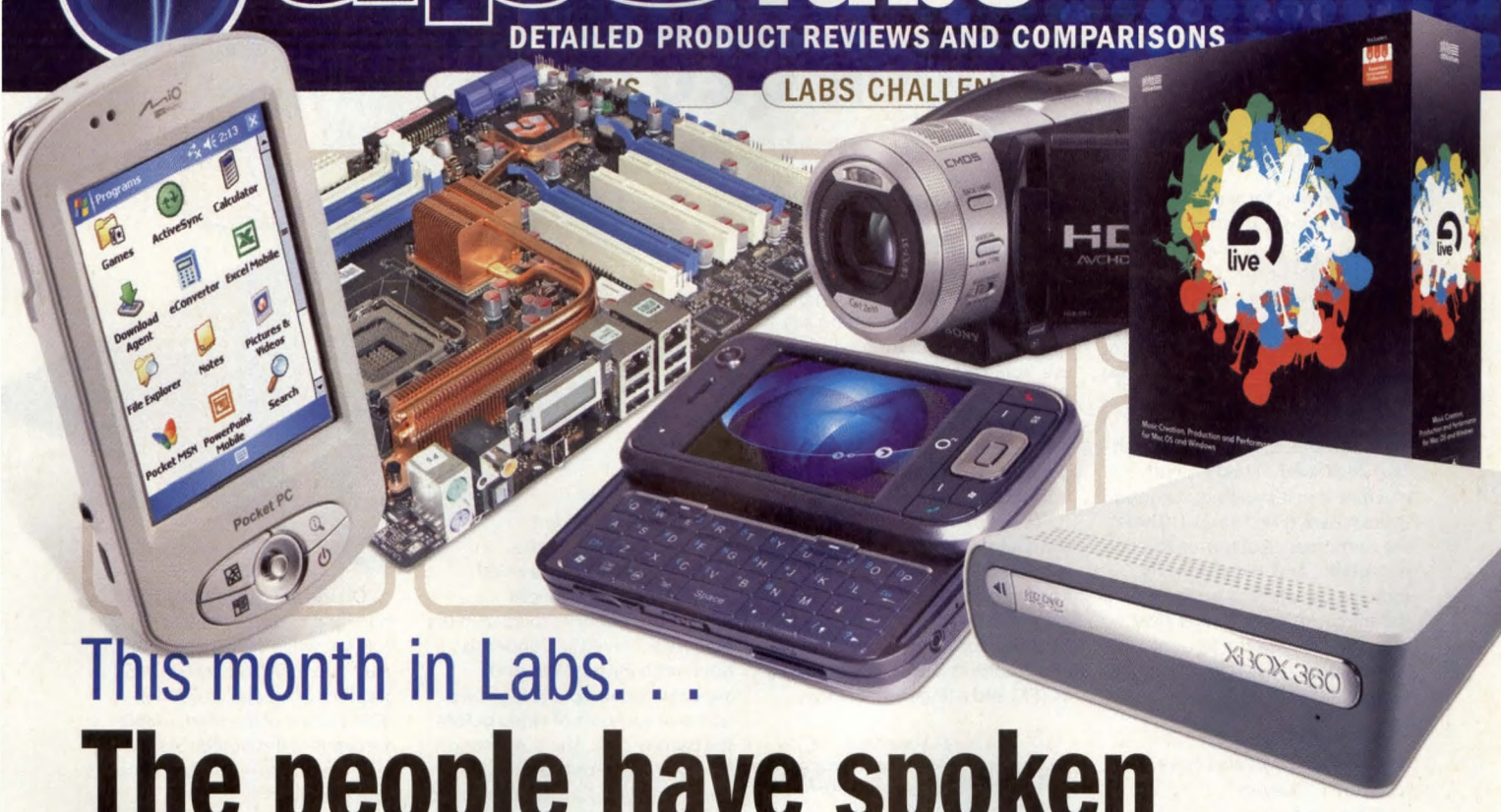


This month in Labs. . .

The people have spoken

Two months ago, in a quest to improve *APC* Labs, I asked anyone who felt like it to email me with ideas. The amount and quality of feedback I got from all of you has been astounding. It's been great to read those emails, the good and the bad, to give us a better idea of what you, the readers, want to read. From this, I've started to implement some changes. Now, it's a slow and steady process, but the first thing we're going to tackle is this: more Labs. Many of you asked for more reviews — and that's exactly what you're getting!

Last month I spoke about the trials and tribulations of moving the Labs to our new offices. Digging through strata of forgotten kit like a technology archaeologist was one challenge, but starting again almost from scratch was another. We started with a blank slate in the new Labs, with our test benches, a new network (I still see patch cables in my dreams. . .), power, cooling and a shiny new toolbox.

Where things go wrong is what's interesting though. With air conditioning being worked on, temperatures soared and Crashing Computer Syndrome came to play. With a less than accurately labelled network patch panel, a new game of testing lines (to find out where they actually terminated) began. When half of the benchmarking gear (and all of the RAM!) was in a box, under many other boxes that you didn't think needed labeling, it involved many hours of unpacking, repacking, head scratching and hair pulling before even the most simple of tasks could be completed.

Once all the dust is settled, and you look around at these new resources and the amount of work that others have put in to them to get it to this point, it makes the issues seem a tad smaller. So next time your network port goes wonky, think about the fellow who had to crawl through endless metres of ducting to put it there in the first place (and who'll do it again to get it working). Or the next time your internet connection goes bad, spare a moment of patience for the linesman, stuck out in the sun or rain, figuring out the problem.

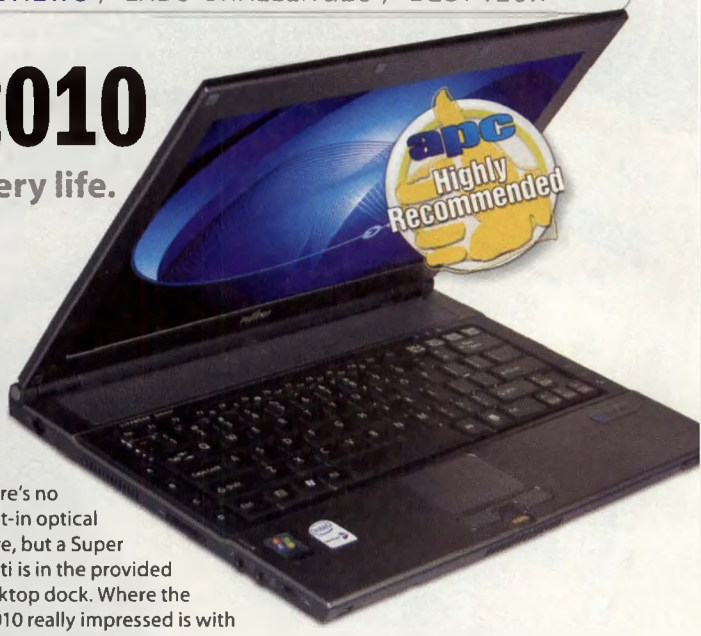
Technology isn't perfect, whether it's a PC or a car. Things stop working — or don't work as intended. Before you blow your stack, take a deep breath and realise that getting angry about it isn't going to get anything fixed any quicker. Patience is a virtue, especially in computing. apc

> SPARE A MOMENT OF PATIENCE FOR THE LINESMAN, STUCK OUT IN THE SUN OR RAIN, FIGURING OUT THE PROBLEM

NICK RACE – TECHNICAL EDITOR

Fujitsu LifeBook Q2010

Slim, fancy and overpriced — but great battery life.



Notebooks targeted at executives are strange beasts. Often foregoing performance for style, the most expensive models are sometimes the least capable. Occasionally a slim, well-designed notebook with a modicum of grunt slips through the style filter and we end up with something like this.

The Fujitsu Q2010 is a fine example of the category: it's a sub-1kg, sleek suede-lined executive machine and it's really quite good. By no means does the Q2010 meet the performance of top-of-the-line notebooks, and in real terms is more on par with the budget end of the spectrum, but it's still a neat package. It seems the price of a notebook increases exponentially based on the thinness of its chassis, and at 2cm front to back, the Q2010 is very sleek.

Built around a Core Solo U1400 running at 1.2GHz, with 1GB RAM on an Intel 945 chipset (using GMA 950 graphics), it's not setting any speed records, but for productivity use, VoIP and business tasks, it'll do. The Q2010 has a crisp, bright 12.1in-display running at a native 1,280 x 800 resolution. The keyboard has a good key action and the inset trackpad works a charm.

To keep the Q2010 so thin, some connectors have been provided with dongles. Ethernet and VGA need to be adapted out, so don't expect to be able to plug in on the run if you forget your cable. Wi-Fi and Bluetooth are on board as well as TPM and a fingerprint reader. There's no built-in optical drive, but a Super Multi is in the provided desktop dock. Where the Q2010 really impressed is with battery life. With a six-cell "extended" battery provided in the box, we acheived just under six hours with BatteryMark and, anecdotally, on a plane flight we had over six hours of video before the battery died. The slim-fitting standard three-cell battery is only good for around 1.5 hours, so keep both in the bag for a full day's work.

On the bench the Q2010 managed to squeeze 1,998 out of PCMark, while 3DMark gave the usual sub-200 score for GMA 950 graphics. The Fujitsu LifeBook Q2010 is one of the more usable executive styles notebooks we've seen in a while — just don't forget your dongle.

Nick Race

CONTACT	Fujitsu
ONLINE	www.lifebook.com.au
MARKET	Everyone
PRICE	$4,299

✔ Slick design; great battery life.

VERDICT ★★★★☆

✖ Underpowered.

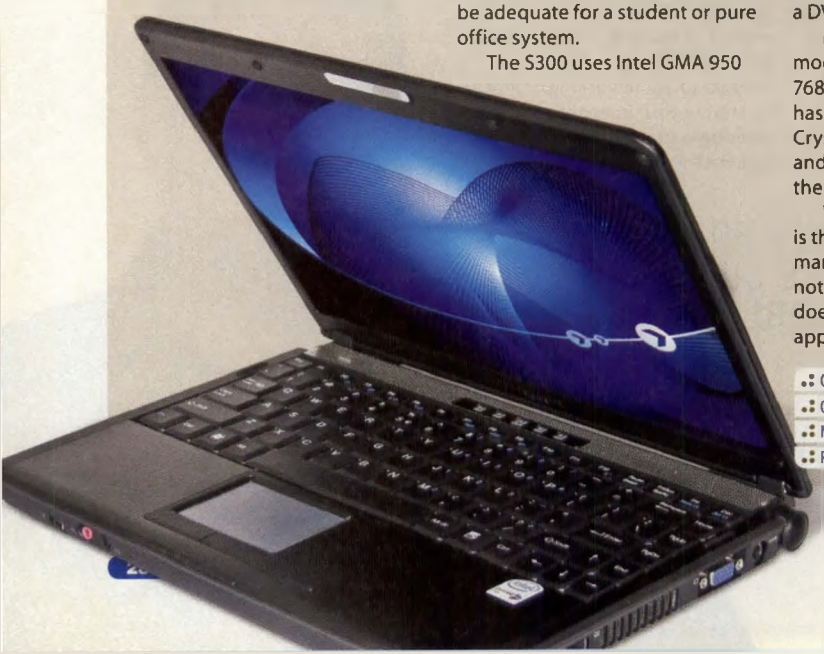
MSI Megabook S300

Nice on the inside, but the exterior needs some work.

The MSI Megabook S300 is what a real estate agent would call "charming" and "full of potential" — which means it's all there, but ugly. And that's this notebook in one.

The S300 is a decent, low-cost Core 2 Duo-based unit with a great screen and sufficient features. The model we received included a Core 2 T5500 at 1.66GHz, 512MB of DDR2 built on an Intel 945 chipset with an ICH-7 Southbridge. It's certainly not the most powerful machine through the doors of the labs, but would be adequate for a student or pure office system.

The S300 uses Intel GMA 950 graphics, Realtek ALC883 sound and includes an Intel 3945ABG Wi-Fi for Centrino requirements. Bluetooth 2.0 was also built in. Other features of the S300 include a 56K modem, Ethernet, an ExpressCard slot, 3-in-1 (SD, MMC and Memory Stick) card reader and a DVD Super Multi drive.



MSI chose a 13.3in panel for this model, running at a native 1,280 x 768 WXGA resolution. The screen has been given an ACV "Amazing Crystal Vision" coat, for a very crisp and bright result. It looks great and there's no argument here.

What lets this notebook down is the general design. The manufacture, fit and finish of the notebook is excellent, but it just doesn't come together as an appealing system. The touchpad doesn't match the colour scheme, and the buttons are too stiff for comfortable use. The keyboard feels spongy and shallow, and the function buttons under the screen are unreadable at the best of times. It feels unpolished.

The performance wasn't astounding, but results were in line with the notebook's specifications. PCMark showed the machine at 2,750, while 3DMark once again panned the GMA 950 graphics solution with 143 points. Battery life was poor, lasting less than two hours with a total time of one hour, 48 minutes. Though the MSI Megabook S300 isn't a bad notebook *per se*, there's better options out there if you're in the market for a budget system.

Nick Race

CONTACT	MSI Australia
ONLINE	www.msicomputer.com.au
MARKET	Everyone
PRICE	$1,699

✔ Inexpensive; ExpressCard; screen.

VERDICT ★★☆☆☆

✖ Low performance and battery life.

Microsoft Expression Web

Could Expression Web be Microsoft's Dreamweaver beater?

Microsoft's Expression Web is a tool that will satisfy a camp of discerning users. Replacing FrontPage, Expression Web is a genuine, professional web site development tool built from the ground up. Though some template-based design features are retained, such as Master Pages, which apply a pre-defined layout to your entire site, the emphasis is now on CSS layout tools and dynamic .NET-driven development.

When you fire it up, there's a Folder List pane on the left — where it was in FrontPage. But where that app actively hid your code, Web exposes every tag and property through a series of task panes. Tag Properties is always on, allowing you to change the attributes of any element contextually without direct coding.

PAGE CREATION

In the middle of the workspace is a large active document view, which can be alternated or split between design and coding views. On the right, we have the heavy-duty page-building commands. The Toolbox task pane lists HTML tags, form components and dynamic controls in a hierarchical tree, ready to drag and drop into the document window.

Finally, we have Apply and Manage Styles panes complete with live previews of the formatting each existing class contains. CSS creation, layout and tweaking tools are at the forefront of Expression Web.

CSS layout layers now have their own task pane as well as a place in the main Toolbox. The execution is similar to Dreamweaver, with one key enhancement: in Expression Web, margins and padding can be altered visually in the document window. You can alter the same attributes in the CSS properties or Apply Styles pane.

Microsoft has been clever enough to keep things that worked in FrontPage. CSS for text styles can be generated automatically using Office-style formatting tools, and New Styles can be created from scratch in the Apply Styles pane. Usefully, embedded and inline styles can be dragged and dropped into any attached external style sheet.

Like Dreamweaver, there are Visual Aids accessible through the View menu — colour-coded outlines that show you where CSS blocks and other attributes are in your page.

CONTACT	Microsoft
ONLINE	www.microsoft.com.au
MARKET	Performance enthusiast
PRICE	$523; $177 (Upgrade FrontPage)

✔ Deal with rich data sets with ease.

VERDICT ★★★★☆

✖ Completely ignores PHP.

> AS THE FIRST OF THE MAIN EXPRESSION TOOLS TO GO TO MARKET, EXPRESSION WEB POSES A DIRECT THREAT TO ADOBE DREAMWEAVER

OVERDEVELOPED

Expression Web's many development features deserve a brief mention. Chief among them is the ability to present Rich Data with live XML, either as XSLT pages or XHTML containing XSLT snippets. Adobe Dreamweaver 8 has similar Rich Data features, but Microsoft's drag-and-drop implementation is much easier to use and could help popularise these technologies.

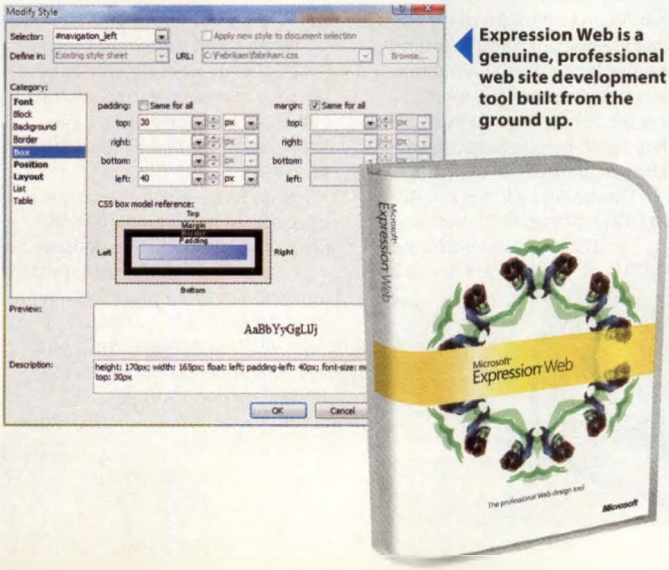
There's comprehensive support for ASP.NET in Expression Web — with drag-and-drop components available through the .NET 2.0 framework — which must be installed. Plus, ASP.NET pages can be tested live within Expression Web using a bundled, lightweight ASP Development Server.

A selling point is W3C XHTML and CSS standards compliance. The rendering engine is tied directly to Internet Explorer, but Microsoft has emphasised that standards-based page building is a foundation of the new tool. The program writes XHTML 1.0 Transitional code, using the standard document type by default. You can switch to other standards or set preferences so the page previews in 'quirks' mode.

There are built-in Accessibility and Browser Compatibility checking tools, though Mozilla, Opera and Firefox are absent from the list of browsers that Expression Web checks your code against — the only browsers it does check against are legacy versions of IE. Accessibility testing checks for compliance with the US Section 508 law and the W3C's Web Content Accessibility guidelines. Once your site has been verified, you can run it through the HTML optimiser to format your code.

As the first of the main Expression tools to go to market, Expression Web poses a direct threat to the designer's favourite authoring tool, Adobe Dreamweaver. It's a strong, standards-based contender, beating its competitor on CSS handling and coding workflow. Still, while boasting W3C standards support, Microsoft has failed to embrace other open protocols. Microsoft .NET developers will love it; Rich Data designers using XML will welcome it; but PHP coders may well pass it by.

Karl Hodge



Expression Web is a genuine, professional web site development tool built from the ground up.

ASUS Asteio D22

ASUS' first PC... or is that set-top box?

Moving into a new market is always a brave move, but when you've got one of the biggest brands in PC components, it should be a cinch, right? Let's see.

ASUS has long been known as a component manufacturer (as well as a respected notebook maker, for itself and many other large brands), but this is the first time it's seen fit to put its own name on a PC. Although that's not really the aim. To coincide with a big push into the LCD TV market, ASUS has released a complete, out-of-the-box media centre solution.

Though ASUS would rather that you didn't know, or more accurately, that you didn't care, under the hood is a Core 2 Duo E6300 running on a P965-based board with 1GB memory and a GeForce 7600 video card. The MCE content is driven by a dual analogue/digital tuner card, stored on a 250GB hard disk drive and all built in to an ASUS low-noise, low-profile case.

The unit's design is spot-on to fit into a lounge room environment, and the system has been carefully designed to minimise noise. It supports DVI, composite and component video out, and feeds audio with a 3.5mm to stereo RCA adaptor. It's got built-in wireless for remote usage, an IR remote control and a custom keyboard with a built-in notebook-like track pad.

On the bench, the Asteio D22 worked like a dream, up to a point. We encountered heat issues, which ASUS assures us has been fixed for retail units. Beyond that, the system records, plays TV content and performs admirably in all its MCE functionality as expected. The Asteio is bundled with an application and service named "Orb", which allows the uploading and remote retrieval of content on the Asteio device. It lets you access recorded TV, music, photos and videos when you're on the move — so you'll never miss an episode of *MythBusters* again.

Nick Race

CONTACT	ASUS
ONLINE	www.asus.com.au
MARKET	Everyone
PRICE	$2,499

✔ Everything you need in the box...

VERDICT ★★★½☆

✖ . . .except for an EPG.

Sapphire Radeon X1050 PCI Express

Get into Vista with this graphics upgrade (and its small price tag).

If you've got a semi-recent PC using PCI Express for graphics, but it's not quite cutting the mustard for Vista Aero, then here's a low-cost solution. ATI's Radeon X1000 series includes affordable, low-powered graphics solutions that'll get you running Aero with ease.

Bumping up from an integrated graphics solution or an older PCI Express card doesn't need to be an expensive activity.

This Sapphire card uses the AMD/ATI Radeon X1050 chip for basic 3D and DirectX 9-compatibility for Vista. Though it's really not much of a gaming card, it will serve well for basic 3D on the desktop.

The X1050 has two programmable vertex shader pipelines and four pixel pipelines for DirectX 9 functionality. It must be said that this card won't carry you into the next generation of games with DirectX 10: it's just not there. It is however a stop-gap solution if you're waiting for prices of DX10 hardware to drop (to make them worthwhile), or if you're just not a gamer. It could also be put to use as a good choice for a media centre; though it's not fanless, it has very low heat output and runs almost silently.

This board includes 256MB of DDR2, DVI and VGA outputs, and a composite video out. On our test bench it earned a very average score of 545. Though it seems like a low score, it's still a world of difference to using integrated graphics solutions from many other low-cost boards.

Testing with Vista Aero showed the card more than capable of all the bells and whistles, but with 3D games, Quake 4 and F.E.A.R, the X1050 was not a record setter (to say the least).

What really makes this card is the price. At less than $110 at full RRP, it's not hard to see where the value lies if you need a quick and dirty upgrade midway through a PC's life cycle. AGP users, keep an eye out — Sapphire plan on releasing an AGP version shortly.

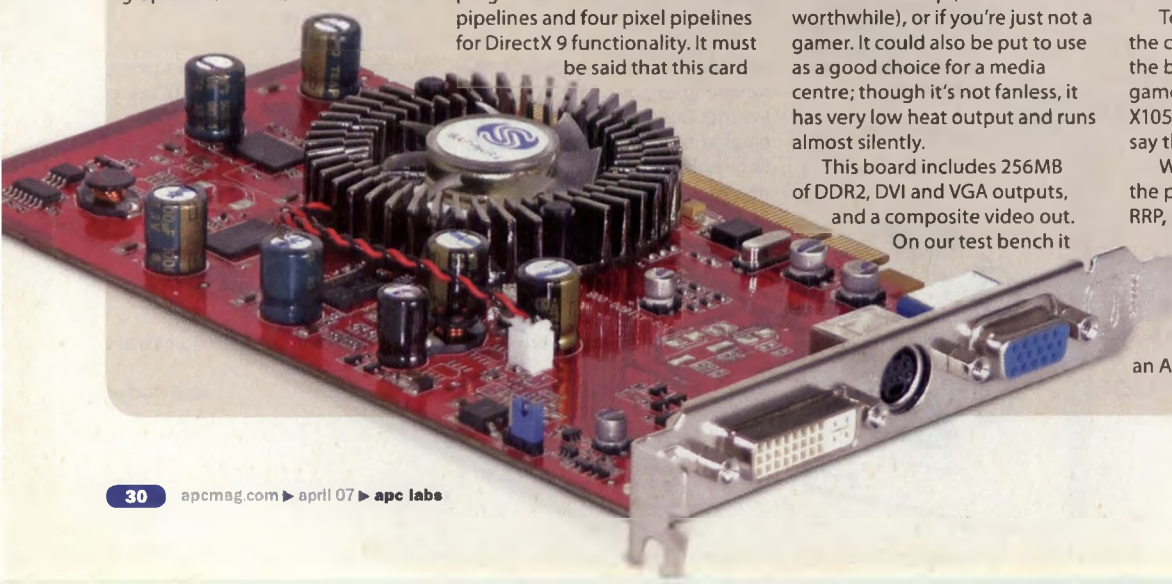
Nick Race

CONTACT	Achieva
ONLINE	www.achieva.com.au
MARKET	Everyone
PRICE	$109

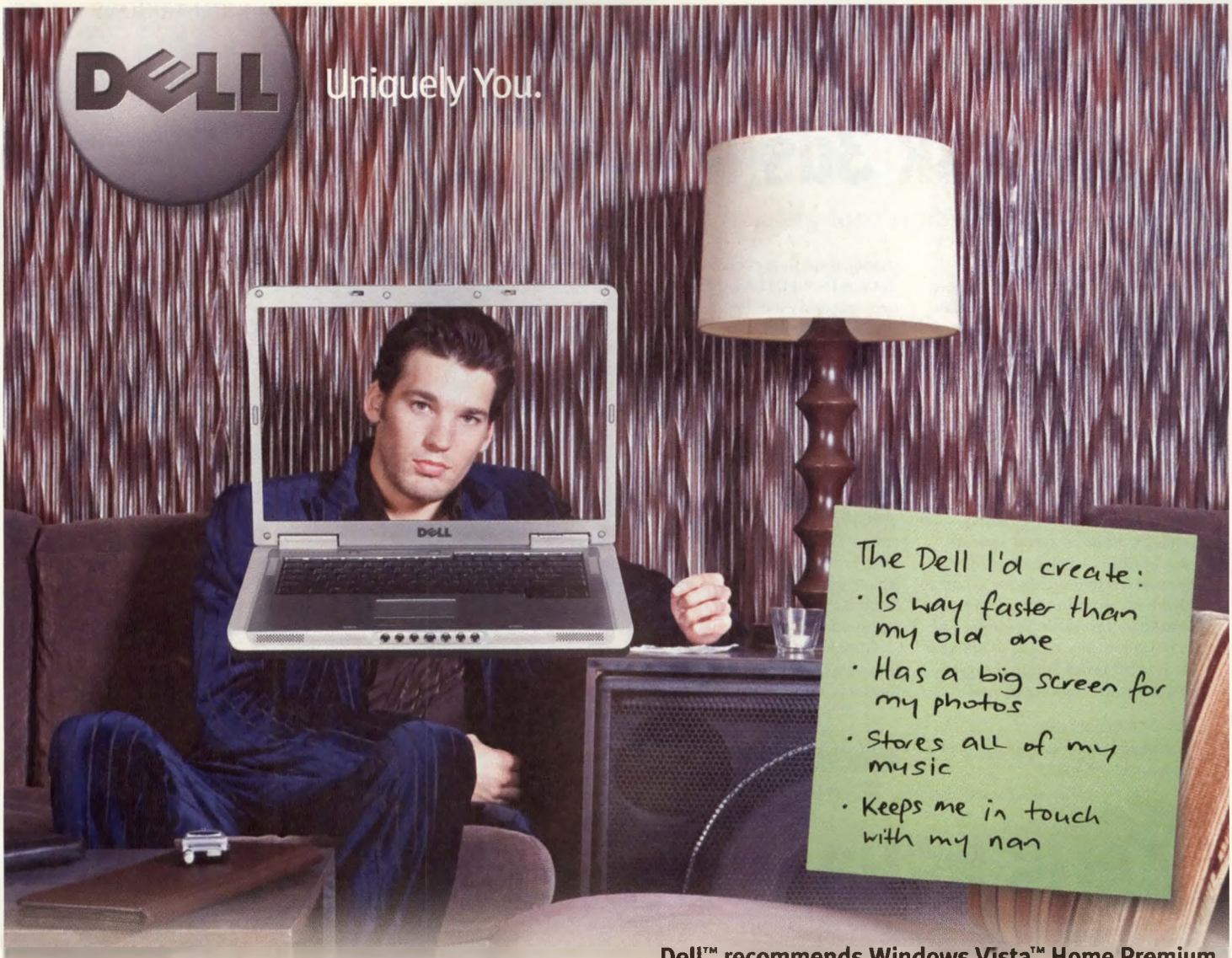
✔ Cheap entry to Vista Aero.

VERDICT ★★★☆☆

✖ Won't be an upgrade to most.



DELL Uniquely You.


The Dell I'd create:
• Is way faster than my old one
• Has a big screen for my photos
• Stores ALL of my music
• Keeps me in touch with my nan

Dell™ recommends Windows Vista™ Home Premium

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Autodesk 3ds Max 9

Autodesk's 3D design tool gets an overhaul.

Our review of Max 8 in *APC* March 2006 asked why there was no 64-bit version. It looks like Autodesk listened: 3ds Max 9 comes in both a 32 and a 64-bit version. This release of Max focuses on performance, with some operations (polygon editing and soft selection) performing up to five times faster than Max 8 in our testing.

Some welcome newcomers are the Mental Ray Sun and Sky systems, which make creating realistic outdoor scenes almost push button. The interface for the Mental Ray renderer has also had an overhaul, with presets rather than a plethora of confusing options. The new built-in Mental Ray shaders for architecture and design also give great results. The coolest new shader, though, is car paint — with options for metal flakes, a clear overcoat and even dirt.

Final Gather in Mental Ray now shows progressive results in the renderer; in Max 8 a black screen was all you got until the render was finished. Hair and Fur can now be groomed easily directly in the viewport, rather than in a separate interface. An entirely new feature in Max 9 that could prove extremely useful in the right situation is animation layers, where several different animation controllers (think motion capture and key framed character animation) can be blended to affect a character.

Messed up booleans should also be a thing of the past, with the ProBooleans toolset (previously only available to subscription payers) built in. External references have been improved, and materials and controllers can now be referenced along with geometry. Game design, one of Max's strongholds in the market, hasn't been forgotten: cgfx materials can now be displayed directly in the viewport.

The 64-bit version does require third party plug-ins to be specifically written for it. The SDK has also changed for 32-bit plug-ins, so they will need updating to work with Max 9. A quick search at the time of writing turned up exactly zero plug-ins ready for Max 9, so if your workflow depends on third party add-ons, do your research before upgrading (although you can run version 9 in parallel with an earlier one).

Autodesk presents the marriage of Max, Maya and Motionbuilder (for creating realistic humanoid animation) as a match made in heaven for a diverse production workflow, as they can exchange data through the fbx (filmbox) format.

Paul Schnackenburg

CONTACT	Autodesk
ONLINE	www.autodesk.com/3dsmax
MARKET	Prosumer
PRICE	$5492.30; $1249.60 upgrade

✔ Comprehensive; speedy; 64-bit.

VERDICT ★★★★☆

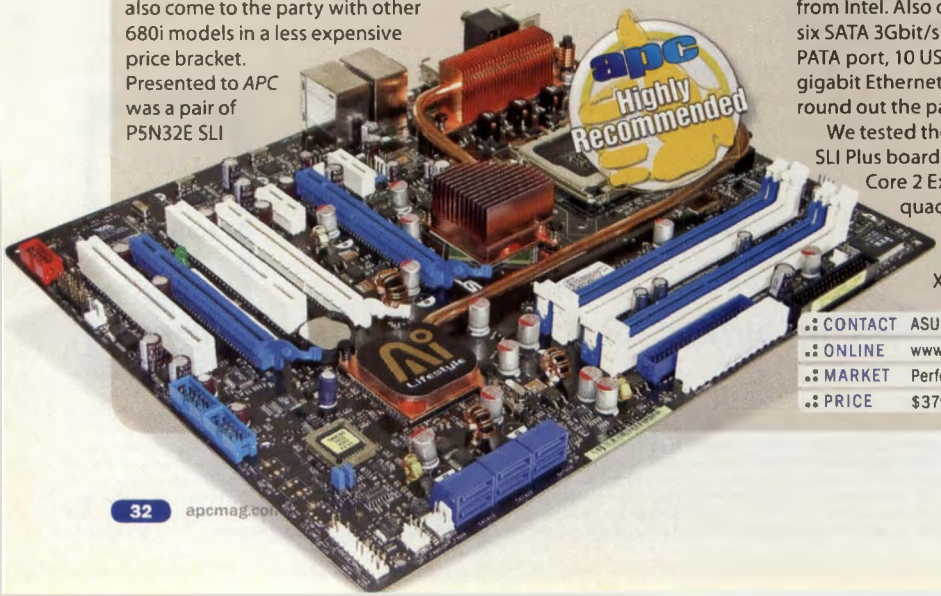
✖ Expensive for beginners.

ASUS P5N32E SLI motherboard

The better board is cheaper?

Motherboards based on Nvidia's 680i chipset are the new bees knees for performance enthusiasts and gamers. It offers the best overclocking options and stability, now that early bugs and niggles have been stamped out.

ASUS's new premium gamer board is the Striker Extreme, based on the 680i chipset, but they've also come to the party with other 680i models in a less expensive price bracket. Presented to *APC* was a pair of P5N32E SLI motherboards, one with a twist. In a limited quantity is the P5N32E SLI Plus motherboard, identical in specs and performance to the non-Plus, with the added bonus of using all-solid capacitors and a $30 cheaper price tag. We tore both models apart in Labs to see if there was any other difference, but nothing presented itself.



The P5N32E SLI motherboard includes two 16x PCI Express lanes for Nvidia cards in SLI configuration, support for Core 2 Extreme, Core 2 Duo and older Socket 775 processors, automatic overclocking of RAM (which supports EPP — "SLI-Ready memory technology") and 1,333MHz FSB future processors from Intel. Also on board are six SATA 3Gbit/s ports, a single PATA port, 10 USB ports and dual gigabit Ethernet connections to round out the package.

We tested the P5N32E SLI and SLI Plus boards using an Intel Core 2 Extreme QX6700 quad-core processor, 1GB of RAM and a Sapphire Radeon X1050 PCI Express graphics card. CINEBENCH rendering clocked both boards at 1,401 using multicore, and PCMark showed the non-Plus model with 6,232 and the Plus model with 6,273.

When it's all said and done, both boards perform the same — and quite well. They are both good models to gain the advantages of the 680i chipset without paying for the bells and whistles of a super-premium motherboard.

The bonus is the P5N32E SLI Plus motherboard uses the newer, longer-lasting all-solid capacitors (and is $30 cheaper to boot). Our guess is the stock won't last for long, so if you're in the market for a new Core 2 motherboard, then grab it while you can.

Nick Race

CONTACT	ASUS
ONLINE	www.asus.com.au
MARKET	Performance enthusiast
PRICE	$379, SLI; $349, SLI Plus

✔ 680i chipset; not too expensive.

VERDICT ★★★★☆

✖ Sound card and PCI-E options.

ASUS DRW-1814BLT DVD writer

All the tech and a tiny cable.

It's been a while since a review of a DVD writer graced the pages of *APC* and, frankly, that's because it's become such common technology, there's little difference between brands and models. It's all going to change again with the increasing usage of Blu-ray and HD-DVD formats but, for now, DVD-RW is the Plain Jane of optical storage.

Though ASUS has been selling drives for a while now, the products have done little to come across our radar, being neither the cheapest or fastest on the market. This drive did. It's a small thing, and it's not the first product by far to be available with this technology, but here it is: finally, a retail SATA optical drive!

SATA opticals have been sold by pro-grade vendors for an age, and OEMs have been using SATA cables in their machines for months as well, but tracking down a SATA drive to build your own PC has been nigh impossible. This ASUS DRW-1814BLT is a premium drive, running at 18x DVD±RW writing, 8x DVD±R Double Layer and 48x CD writing. Interestingly, it's only rated to read DVDs at 16x (slower than it can write to them). It can also write DVD-RAM at 14x.

The drive supports LightScribe for printing, using the drive's laser on the reverse side of the disk, though this reviewer has found a Texta to be a much faster and cheaper solution. In the box, the drive is provided with a couple of blank LightScribe-compatible discs, an OEM version of Nero 6 and a faux leather CD case as a sweetener.

In testing, the ASUS DRW-1814BLT performed as it should, though tracking down 18x media proved impossible, the drive burned at 16x without any coasters. It would have been nicer to get the latest — or even more recent — version of Nero with the drive, but at this price, we're just glad we can get airflow around our case.

Nick Race

CONTACT	ASUS
ONLINE	www.asus.com.au
MARKET	Everyone
PRICE	$79

✔ Uses SATA cable and power; speed.

VERDICT ★★★★☆

✖ Older version of bundled software.

SanDisk V-Mate digital recorder

Get video to your handheld with none of the convenience.

The SanDisk V-Mate is a device designed to record digital video to memory cards for playback in portable devices such as mobile phones and PSPs.

Now, this is a great idea: do away with the hassle of having to transcode PC-based videos, or capture to a PC then downsize to fit it on to a memory stick on the go. It does away with difficult-to-use software, endless undocumented options and dodgy "all-in-one" apps that never seem to work.

The V-Mate allows you to record video from any composite video and audio source, automatically compressing and resizing for portable devices using MPEG-4 and H.263 video compression.

It supports a wide range of devices natively, and there's an option to specify your own video requirements if your device isn't on the list built in to the V-Mate. It can write to SD, SDHC, miniSD, microSD, microSHDC, MMC Plus/Micro/Mobile and Memory Sticks, Memory Stick Pro and Pro Duo.

It can be programmed in advance to record when you're not around, including daily and weekly repeats. The major downside to this device is that you can't watch TV and record at the same time. SanDisk had a great idea and botched the implementation.

As the device works as a passthrough, it sits between your video source and the TV; when recording it takes over the TV altogether, so you can't watch anything and record simultaneously.

CONTACT	Brightpoint
ONLINE	www.brightpoint.com.au
MARKET	Everyone
PRICE	$245

✔ Good video encoding; great idea.

VERDICT ★★½☆☆

✖ Hijacks your telly.

This would be OK if you could feed the device out of a secondary video connection, or video splitter, but you still need the TV to be able to program and start/stop recording. In this way, it's like a VCR, except, annoyingly, you can't record a show and watch TV at the same time.

Video recorded on the device was tested in a PSP and smartphone/PDA. The quality's good, the sound is a little low and the ease of use is excellent. It's just not ready yet. Maybe this can be fixed with a firmware update (and we'll be watching for it), but at the moment it's a device designed to make a task simple — but which ends up reducing functionality overall.

Nick Race

Fuji Xerox DocuPrint C2090FS

Colour printing at a snail's pace.

This Fuji Xerox is a colour multifunction printer for those who don't want to print colour documents. The C2090 excels with black-and-white printing, shooting through a 20-page document in less than 90 seconds, while the same document with colour images included crawls at five minutes, 10 seconds.

The speed isn't terribly surprising, as the printer component is rated for black-and-white operation at 25 pages per minute, while colour is listed as 5ppm, so it's plain to see the priority on this business-centric model.

Features include printing, scanning, photocopying and fax, with some scanner functions supported through supplied software.

Scanning is a simple affair, with an application set to store the scanned 1,200 x 1,200 documents, open them up or send via email. Photocopying worked as advertised, with an automatic document feeder able to hold up to 50 sheets. The C2090 supports faxing at "Super G" 33.6KB/s in colour.

Interesting for a business device, the C2090 allows printing from a USB key with a single USB port for this purpose. It's novel and might just come in handy if the network is down, or if office visitors need to print without accessing your network.

The quality of the colour prints out of the DocuPrint C2090, apart from being slow, were far from stellar. Colours are muted and washed out, with heavy speckling over the entire test target. Scanned and copied colour images weren't great either, but the unit does quite well with plain text.

If your office prints almost exclusively in black and white, but you still need the option for occasional colour, then the DocuPrint C2090 is a consideration; however, if you're reliant on colour prints, then look elsewhere (or consider a specialised colour unit for that purpose alone).

Nick Race

CONTACT	Fuji Xerox
ONLINE	www.fujixerox.com.au
MARKET	Small business
PRICE	$1,319

✔ Good quality, fast black prints.

VERDICT ★★★☆☆

✖ Slow and poor colour prints.

Lexmark C534DN

The Lexmark C534 laser printer produces great mono prints too.

With the C534, Lexmark is entering the market for quality laser printers under two grand. Like Fuji-Xerox's offering, the initial investment is low enough for this printer to find its way into both homes and offices alike. At this price, however, you wouldn't expect all the features you would get from the more expensive colour lasers, so there's no flatbed scanner, fax functionality or support for A3 prints. You do get duplex colour printing up to 1,200dpi, plus a fast print mechanism capable of pushing colour and mono pages out at over 20ppm once the printer has warmed up.

One annoyance is the noise from the C534, which resembles an aircraft taking off as it spits out pages. This will prove to be a major distraction if the printer is close to where you work. In addition, the C534's desktop footprint is fairly large, so prepare to lose desk space.

These problems are forgivable if the C534's print quality will turn heads, but results here vary. Blacks come out very nicely; a test image of a white silhouette on a black background was exceptional, without verging towards one colour, as many printers can do when printing blacks. While testing a black-and-white photo, detail was obscured by the image being too dark. The manual suggests adjusting the RGB values and toner darkness, but results were still not as good as the same photo printed on Fuji's printer.

Colour prints also suffered from slightly dark tones, with some improvement after recalibration and adjusting settings on the software, but never looking as good as the monochrome output. A lightly coloured reproduction with a lot of yellow was very close to what was displayed on screen, but when a more green-and-red image was printed, colour tended to bleed on the page.

Colour toners come in at more than $270 each, with black costing slightly less. This seems a lot, but they last up to 7,000 prints. Ignoring the cost of the printer and other consumables, this works out at 3 cents a page, which is excellent value for money.

For perfect photograph reproduction, there are countless better options than the C534 — or a laser in general. For a workhorse printer employed for large volumes of text output with some colour on the page, the C534 works well.

Orestis Bastounis

CONTACT	Lexmark
ONLINE	www.lexmark.com.au
MARKET	Small business
PRICE	$1,862

✔ 1,200dpi; 21ppm tested

VERDICT ★★★½☆

✖ Noise output; size.

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Panasonic Toughbook CF-19

This notebook is suitable for virtually any situation, including the wet and wind.

Panasonic has persisted for years with its Toughbook line. If ever there were a case of "if it ain't broke, don't fix it", the Toughbook would be it. First, this is because the Toughbook was done well in the first place; but second, because it's extraordinarily hard to break. And that is, after all, the point.

We can't, in good conscience, offer any prizes in terms of looks, but this is a practical machine first and foremost, built to withstand inclement conditions, and it's armoured to the hilt. This doesn't mean that you'll be able to dunk it in water and get away with it, but its MIL-STD-810 certification means it's built to withstand splashes and spills, vehicle vibration, the occasional drop and harsh temperatures.

The chunky magnesium alloy shell makes it a good 2in thick while closed, and you'll be thankful for the carrying strap — to say its weight matches its bulk is something of an understatement, and, although it's not the heaviest laptop in the world, you would expect something with a diminutive 10.4in screen to be a little more vertebrae friendly. Squashing up the form factor also means a forced three-quarter sized keyboard, which isn't easy to get used to.

This is, however, about the only machine we've seen in the last few years where we can appreciate the practical usefulness of its tablet screen. The Toughbook is designed specifically for use on the move and in conditions that might be less than ideal. Sitting down to type at a keyboard isn't the first thing you'll be considering if the rain is whipping you from all sides, but scribbling on the extra bright transmissive screen — clearly readable in daylight — is easy enough. It's just as sturdy as the rest of the machine, too; even pressing as hard as possible, it's difficult to get any sort of image bleed. That's tough. It's worth noting that we looked at the stylus edition, which utilises a magnetic pen for screen input, but a second version of the CF-19, with a finger-sensing touchscreen, is also available.

SAFE AND SOUND

Despite the impenetrability of the machine as a whole, the Toughbook's components are relatively easy to remove. Rubber-sealed slide-lockable doors cover the battery, shock-mounted hard drive and a few expansion ports, and are opened easily in a hurry. The SD card slot — the only removable storage you'll find — is cleverly tucked away, with the PCMCIA slots behind one such door, and there's just enough room to seal the door backup with a card inserted. This design does preclude you from using extended-length PCMCIA cards if you want to retain the CF-19's water-resistant nature, though. The USB ports, network port and power connector are covered by stiff-fitting hinged covers, with the power in particular recessed to give an almost water-tight fit. That said, we couldn't suggest charging this in the rain.

Thankfully, you're not going to need an awful lot of charging while on the move. Panasonic is one of the first to plump for an ultra-low voltage chip, the Intel Core Duo U2400. In terms of battery life, it's a winner, but for all its toughness on the outside, the CF-19 is something of a weakling where it counts. The processor only squeaks out a miserable 1.06GHz — still leaps and bounds ahead of the previous generation of laptop chips, but puny by comparison with the current crop. It does its job perfectly, though. The expandable 512MB RAM means you'll barely notice the slower chip, and if you've purchased this machine for any kind of high-end task, you've made the wrong choice anyway.

There's a specific market for this type of machine. This and the vast majority of its tablet brethren are — to put it mildly — utterly frivolous in all but the most specific of situations. However, the CF-19 is certainly suitable for outdoor use, and if you're a field operative who needs to frequently reproduce notes scrawled in pencil on damp paper, you need look no further for the ultimate time-saving device. For the rest of you, though? Only the clumsiest need apply — because this is a luxury purchase at the price.

Alex Cox

> IT'S EXTRAORDINARILY HARD TO BREAK, AND THAT IS – AFTER ALL – THE POINT: IT'S ARMOURED TO THE HILT

Strapping: the chunky magnesium alloy shell makes it a good 2in thick while closed.

The extra bright transmissive screen is clearly readable in daylight — and just as sturdy as the rest of the machine.

CONTACT	Panasonic
ONLINE	www.toughbook.com.au
MARKET	SMB
PRICE	$6,249

✔ 1.06GHz Intel Core 2 Duo U2400.

VERDICT ★★★½☆

✖ No internal optical drive.

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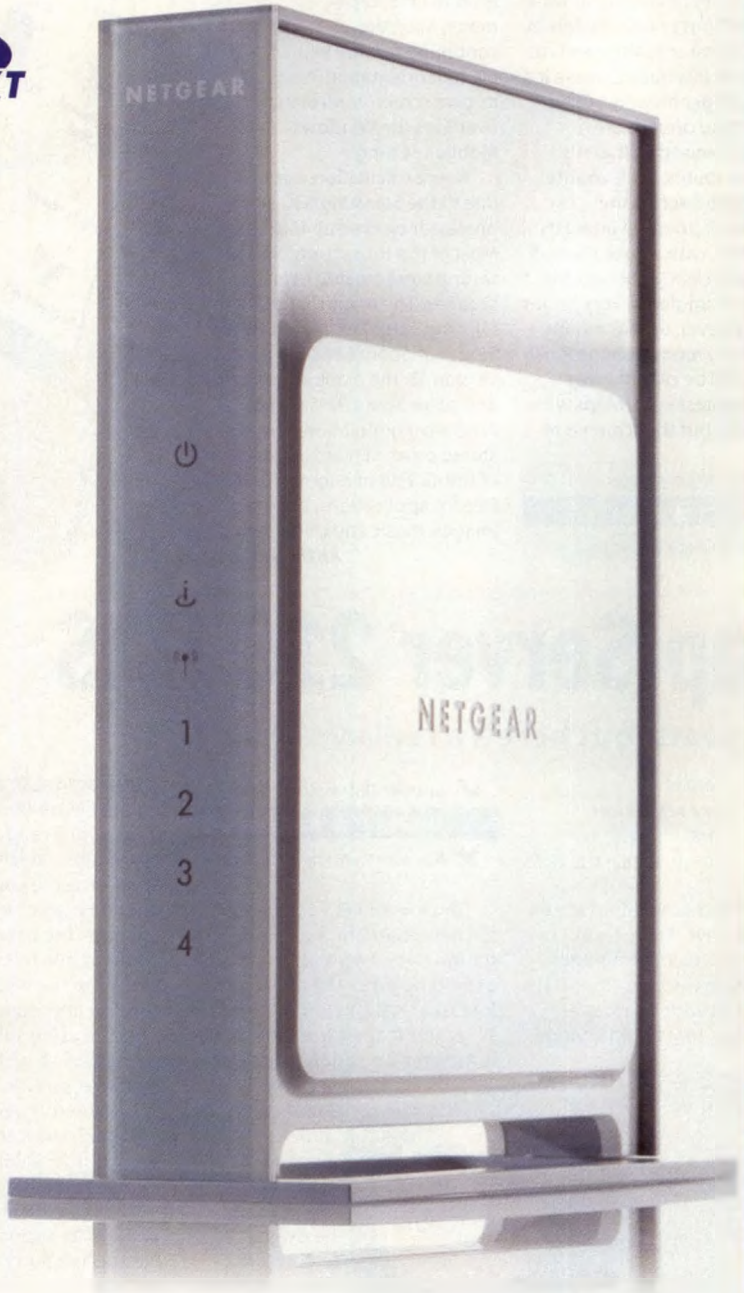

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Mio P350

Cheap but not nasty — Mio's GPS to go.

Mio pioneered the use of PDAs as GPS devices, and the P350 continues that tradition. Rather than the standard black or metallic finish, the P350 is clad in white. As well as being a portable GPS unit, the P350 is a fully-fledged PDA running Windows Mobile 5. That means you get the mobile version of Office, Windows Media Player and an image viewer as well as Mio's mapping software.

The GPS receiver is built around the SiRFstar III chipset. It's able to listen to or search for the signals from 20 different GPS satellites. This ensures that the P350 doesn't lose signal and is able to get a positional fix quickly. From a cold start, the P350 was able to get an accurate position in less than 90 seconds.

Now at version 3, MioMap is easy to use. However, many of the buttons and controls are quite small. While they're easy to hit with a stylus, that's not practical while in the car. For in-car use, Mio needs to revise the user interface to make it a little more "finger friendly". Other than that, menu options are intuitively organised so that it's easy to enter routes, set favourite destinations and access the extensive list of points of interest.

The screen, with a resolution of 240 x 320, was clear, although, like many LCDs, struggled in very bright sunlight. However, the car mount made it easy to reposition the P350 so that it could be placed away from the brightest light. Maps were shown clearly, but the screen is at the bottom end of what we like to use. Strangely, when the OS is set to landscape mode, MioMap continued to work in portrait orientation. It has its own screen control that overrides the Windows Mobile's settings.

Route calculation was fast due to the Samsung S3C 2440 processor clocked at 400MHz. Most of the trips we entered for testing were created in just a few seconds. The maps that the MioMap software uses come from Telstra offshoot Sensis. Now at version 13, the maps are accurate and cover about 97% of the Australian population. They're stored on an SD card, leaving most of the 480MB of internal memory free for applications, documents, images, music and other data.

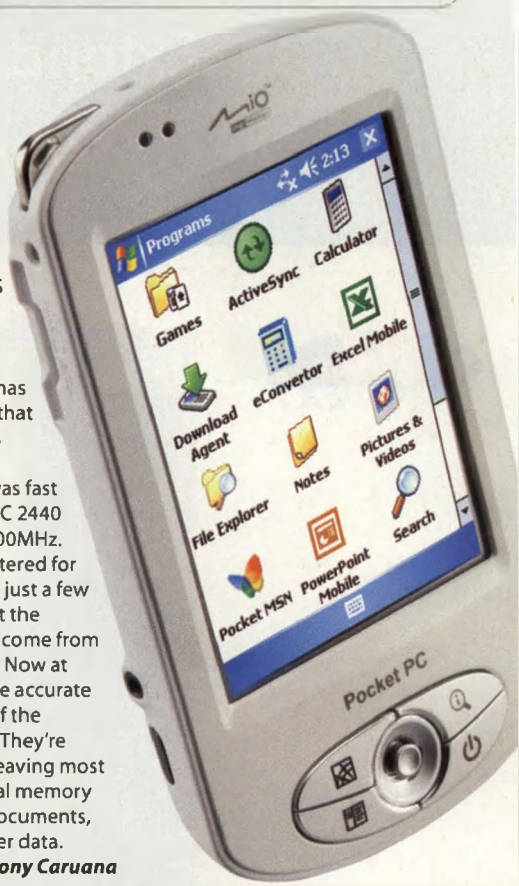
Anthony Caruana

CONTACT	Mio
ONLINE	www.mio-tech.com.au
MARKET	Everyone
PRICE	$499

✔ All in one; lots of storage.

VERDICT ★★★☆☆

✖ Screen; depends on a stylus.



Adaptec Snap Server 210 NAS

Snap's been in storage for years, but here's a real eye-opener.

Business quality network-attached storage (NAS) is a very expensive game to play. With price per gigabyte costs well over triple the consumer price, it's sometimes been hard to see exactly what you're paying the premium for. Here's the secret: it's the software.

NAS and storage vendors use proprietary or heavily secured open source OSs on their boxes, with NAS devices or head units working more as a server than just an Ethernet interface on a hard disk drive. Entry-level business units have sometimes been closer to the consumer style of device, but with Adaptec's latest release, that might change.

The model *APC* looked at is the new Snap 210: a desktop-design two-disk solution capable of holding up to 1TB of data in RAID 0 or RAID 1 configurations. What sets it apart from the rest is Adaptec's decision to include the award-winning Guardian OS, adding functionality that has, in the past, only been available to enterprise-class customers.

Running a full-blown operating system on the device allows functionality such as CA's eTrust Antivirus to scan any file stored on the device (or before it even hits the disk) and EDR or data replication, which allows the Snap server to copy files and directory structures to other Snaps on the network, based on configurable rules. Also, file and block storage with iSCSI SAN-like support and client backup is possible using solutions from Veritas, CA, BrightStor, Legato and BakBone, or even Window's built-in backup software.

The device can emulate servers from a number of different legacy network types for installation in older environments, and can be supported from a central location by network administrators with a browser. In testing, we clocked the Snap Server 210 with a throughput rate of 187Mbit/s, with four clients running NetBench. It's certainly no slouch.

Nick Race

CONTACT	Adaptec
ONLINE	www.adaptec.com
MARKET	SMB
PRICE	500GB, $2,152; 1TB, $3,557

✔ Guardian OS; functionality.

VERDICT ★★★★☆

✖ Not rack-mountable in this form.

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Sony HDR-SR1

High-definition goodness, but how do you edit?

Sony's HDR-SR1 was one of the first AVCHD cameras to hit the scene, and it's one enticing product.

AVCHD is an H.264 codec, which translates to highly compressed but smooth HD video. A number of bit-rate record options are available in this camera, from 5Mbit/s to 15Mbit/s. A rough equivalent to HDV is the 9Mbit/s setting, though AVCHD is a bit more prone to artifacting in fast-moving scenes.

The SR1 has a 30GB hard drive, which at the maximum-quality setting allows for four hours non-stop recording; great for a long day out, but you'll need two batteries to shoot that long in one session.

The image quality is excellent, with Sony continuing to run with their ClearVid CMOS sensor. The touch-screen system is another Sony standard now, used for menus as well as the impressive spot metering and spot focus options. Add the 5.1 channel microphone (which isn't spectacular, but better than you might expect) and a smooth slow-motion record feature, and this is one of the most promising 1080i cameras, or any kind of DV camera, on the market.

But. And this is a big but. If you want to edit your footage, your only option right now is to use the very basic software included with the camera. No editing package, not even Sony's own Vegas, is yet to include AVCHD support. Vegas has announced an update coming soon (possibly by the time you read this), while no-one else has said a word. Until support arrives, you are stuck doing little more than watching raw footage back on your TV — over component, composite, or HDMI.

Once you can edit, the highly compressed footage will demand more from your system, so make sure you have something quite recent (anything Core Duo or better will be good) to do the job.

When support finally arrives, this camera will be without peer in its price range. Until then, the footage is locked away like a caged animal. Let's hope the software developers hurry up and let us unleash this beautiful beast.

Seamus Byrne

CONTACT	Sony Australia
ONLINE	www.sony.com.au
MARKET	Everyone
PRICE	$2,499

✔ Great HD, control and hard drive.

VERDICT ★★★½☆

✖ Very poor editing support.

O2 Xda Zinc

Connect to everything.

O2 have been churning out smart phones since before they were even trendy, and with all of that practice, the company seems to have it down pat.

The new top of the line in the Xda range is the Zinc model — a slide-form factor, 3G do-everything model that should please even the pickiest of smartphone users.

The Zinc is based on Windows Mobile 5, and running on a 520MHz Intel Xscale processor, has plenty of grunt for on-the-move computing. It includes 64MB of RAM and 128MB of ROM, which, in our opinion could be beefed up a little, considering the price of NV RAM in the current market. Expansion is via a miniSD slot, a form factor gaining popularity in mobiles, but might be a little hard to buy in large capacities. And you'll want to, with a 2MP video camera built in.

Supporting 3G, Tri-band GPRS/GSM, 802.11b/g Wi-Fi, infra-red and Bluetooth 2, there's little the Zinc can't connect to or interact with — so finding connectivity on the road isn't a problem.

There's no support for Telstra's HSDP however — you're limited to getting data via 3G or GPRS, so keep that in mind if you're a user of bandwidth-heavy apps on the road. Matching that, the Zinc has a great battery life, lasting a couple of days with moderate usage.

On the down side, the 175g Zinc has all the ergonomics of a badly baked brick: the inset power button involves reaching up in an unnatural manner to switch it on; the slide-out keyboard has half size "e" and "i" keys (unforgivable for vowels, which are typed most often in the English language); and the device won't sit flat on a table if the keyboard is out.

There's a lot to like if you require the functionality O2 has built in to it. The connectivity options are unmatched and the screen is excellent for all purposes. But if you're just looking for a phone that will do a little more, then you'd best pass it over.

Nick Race

CONTACT	O2
ONLINE	www.o2.com.au
MARKET	Prosumer
PRICE	$1,149

✔ Unmatched connectivity; powerful.

VERDICT ★★★½☆

✖ Hardly a pleasure to use.

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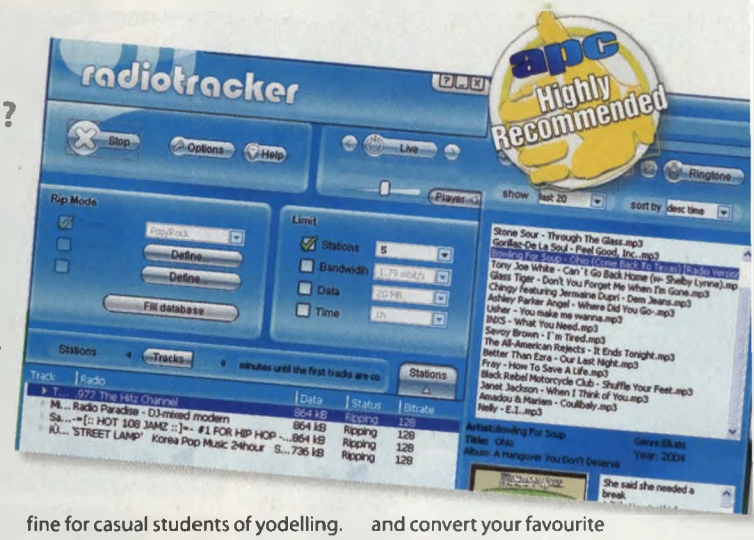
Radiotracker 2

What price a free lunch in Radiotracker 2?



During prohibition, American winemakers hit on a neat trick. They weren't allowed to sell alcohol any more, so, instead, they produced bottles of grape concentrate with detailed warning labels about how easily they could ferment if stored "improperly". Why think of that now? It's something about Radiotracker's box. Right at the top comes the bold, booming claim that you can record hundreds of MP3s for free; at the bottom, in rather smaller letters, a casual mention that doing so is almost certainly going to be illegal, and that you'll first need permission from the copyright owner.

Obviously, we must side with Avanquest. Copyright infringement is wrong. Piracy is bad. Therefore, we're going to assume that the tool is designed principally and exclusively for, say, building a collection of public domain yodels. True, the odds of being caught is minimal. You never transmit any dodgy files yourself, and the radio stations being recorded just see you as another listener. But that's not the point, is it? No it isn't. And anyone who thinks otherwise is a very naughty person.

Having picked a station, the software hooks up to multiple streams and dumps their contents down into an MP3 file. It splits up your yodels, adding fade-ins and fade-outs to avoid intrusive station IDs or bleeding. The results are more clipped than you would expect from an ITMS download (sorry, a Creative Commons download), but perfectly fine for casual students of yodelling. An integrated database is on hand, slapping in the necessary ID3 tags, and fitting at least commercial yodels into your existing catalogues, be they Swiss, African or Pop/Rock. Bit rates are obviously tied to the source radio station, but you can set a minimum threshold, and the software performs a number of tricks to equalise your yodels' volume or to cherry-pick duplicates and convert your favourite mountain calls into ringtones for friends and family.

Radiotracker 2 is a splendid piece of software. It's powerful, effective and very easy to use. Oh, and it's also pretty good at leeching gigabytes of free music from those endlessly flowing online streams while shouting "Arrh, Jim-Lad!". But you didn't hear that bit from us.

Richard Cobbett

CONTACT	Avanquest Info
ONLINE	www.avanquestusa.com
MARKET	Everyone
PRICE	US$30

✔ Powerful and easy to use.

VERDICT ★★★★☆

✖ No get-out-of-jail-free card.

Diskeeper 2007 Pro Premier

Step up to a hardcore disk defragmenter.

Drive fragmentation is a pain. As you run your PC, loading and saving files, the filing system saves them in any convenient spaces it can find on your hard drive. It'll happily break up a file into small pieces in order to fit it into available gaps in the file structure. When asked to load a fragmented file, it takes longer for the filing system to collect the pieces together than to load it in one chunk. Filing performance can be increased by putting the file fragments back together by "defragmenting".

Windows XP comes with a disk defragmentation routine, but Diskeeper would like you to forsake that for its own eponymous utility. Now in version 2007 — effectively version 11 — this is a mature product, which benefits from more than 10 years of development.

The big advance in the 2007 version is what Diskeeper calls InvisiTasking. This means the program will sit in the background, using system resources when you're not working on your PC. You no longer need to schedule drive defragmentation at regular intervals; files are automatically defragmented whenever they're broken up. This makes Diskeeper 2007 a load-and-forget application which needs little configuration. In fact, it's best to run it in automatic mode, since running a manual defragmentation can take a long time. Our test machine took more than 24 hours for the first run.

Fragmentation is reduced and Diskeeper aims for the best performance from your files, not the prettiest file structure diagram. If a file is loading fast, it doesn't get moved around. The program uses another technology, I-FAAST 2, to monitor which files are used most often and places them in the fastest area of the hard drive. Under test, using Diskeeper's own load monitor, InvisiTasking used between one and eight per cent of system resources while running, and pulled back as soon as any other task started. You shouldn't notice any performance hit. InvisiTasking is only available in the Pro Premier versions and above.

Diskeeper does the job it claims to do and its new real-time, behind-the-scenes techniques mean it works well straight from the box. $187 is a lot for defragmenting your hard drive, but this is the premium edition; versions for home and basic office use (the Professional edition) start at $93.50

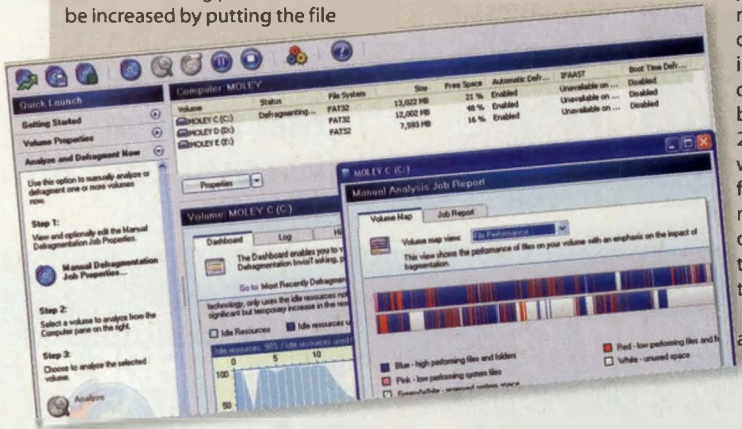
Simon Williams

CONTACT	Pixel IT
ONLINE	www.pixel.com.au
MARKET	Everyone
PRICE	$187

✔ Constant defrag for a faster system.

VERDICT ★★★½☆

✖ High price for unintrusive running.



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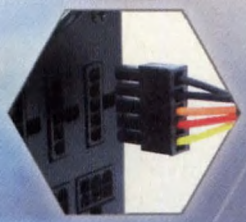

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Xbox 360 HD DVD Player

With or without a PC, a great way to play HD.

Although the packaging for the Xbox 360's external HD DVD drive states that it requires an Xbox to use, the good news is that the drive will work just fine when it's coupled with a PC.

Since this isn't a product that's specifically aimed at PC enthusiasts, it requires a degree of effort to get it working. XP users will need to hunt for a UDF 2.5 driver before the HD DVD discs can be read, while adopters of Vista are catered for out of the box. When connected, the Toshiba-made HD DVD drive is recognised as a USB CD-ROM, and Windows will treat it as such. Using the drive with Linux or Mac OS is similarly challenging, but as long as you have UDF2.5 and USB support, it should work in the same way.

In addition, you must install a software decoder to play discs, because Windows won't do the job for you. Cyberlink's PowerDVD Ultra edition is perfect for the task, since it is fully capable of decoding VC-1 and H.264 encoded video, as used on HD DVDs. Unfortunately, this task is processor-intensive, so you can't just take an old PC and assume you'll get smooth HD playback. If your computer can't keep up with the task of rendering HD video, it will drop frames and your viewing experience will be degraded.

Having a powerful GPU will help. Cyberlink recommends an Nvidia 7600GT or ATI x1600 or better. Your CPU still faces the brunt of the work and, although some have previously questioned the need for the raw power of today's CPUs, decoding HD video makes a 3GHz Pentium, Core 2 Duo or Athlon X2 a necessity.

You may be wondering whether you need an HDCP-compliant display device and graphics card to use this unit but, as yet, no HD DVD has allowed this option. This first batch of drives also benefit from being region-free, so you'll have access to a vast library of titles. This may change at any time, but for now consumers reap the benefit. As Blu-ray carries a heftier price tag, this is the lowest-priced option for PC users to enjoy hi-def discs.

Orestis Bastounis

CONTACT	Microsoft
ONLINE	www.xbox.com.au
MARKET	Performance enthusiast
PRICE	$249

✔ HD-DVD playback; USB 2.0.

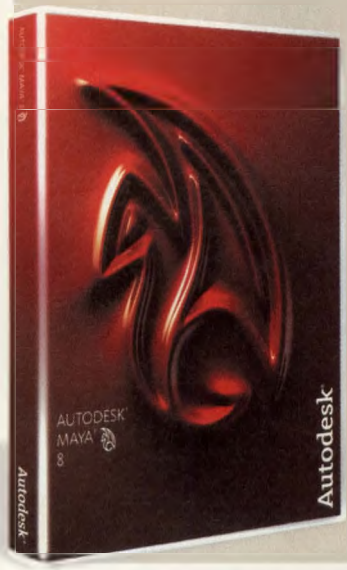
VERDICT ★★★★☆

✖ May require some fiddling under XP.

Autodesk Maya 8.5

An unexciting update to a solid 3D graphics tool.

A lot of work in this release has gone into performance enhancements and multithreading for this 3D graphics tool — a favourite for game designers and TV and film graphics work. Just like its cousin (3ds Max), the Maya 3D graphics suite now comes in both 32 and 64-bit versions. The 64-bit is only available for Windows and Linux, whereas a 32-bit universal binary is offered for Macs.



The improvements showed in our testing. The user interface could take a while for the experienced user to pick up, as menus have changed. The Modelling menu has been split into Polygon and Surfaces; there's also a new editor, so you can create custom menus.

A useful new feature is Transfer Polygon, where you can move UV attributes or vertex positions between meshes (a low-res and a high-res version of the same model for instance); the paint tool can be used for this. The UV Texture Editor has had an overhaul and is easily twice as fast as in earlier versions.

Some inheritance from 3ds Max comes across in another new feature, which enables quick creation, positioning and scaling of primitives directly in the viewport. Another sign that Autodesk has taken over is the export of scene information directly to Toxik (Autodesk's high-end compositing and workflow tool).

The new Bridge tool is also handy in the right situation; it allows connection of two or more boundary edges with a bridge of polygons. You can control the resulting polys with options such as Linear, Blend and Blend+Curve. The Mental Ray renderer is better integrated and has been brought up to version 3.5. As always, it produces great results, and a new feature is included: Sub Surface Scattering. Mental Ray shaders can be displayed in viewports, something that should have been in place a long time ago. The new Sun and Sky shaders that come with Mental Ray look good. 8.5 adds Python as a new scripting language alongside MEL (Maya Embedded Language).

Overall, though, there aren't a lot of new features, nor major enhancements to existing ones. Game developers will find enough to warrant the upgrade, but others might be a bit underwhelmed and will look forward to what the next version brings in late 2007.

Paul Schnackenburg

CONTACT	Autodesk
ONLINE	www.autodesk.com/maya
MARKET	Prosumer
PRICE	$3,146

✔ 64-bit support; Mental Ray 3.5.

VERDICT ★★★½☆

✖ Not a huge advance.

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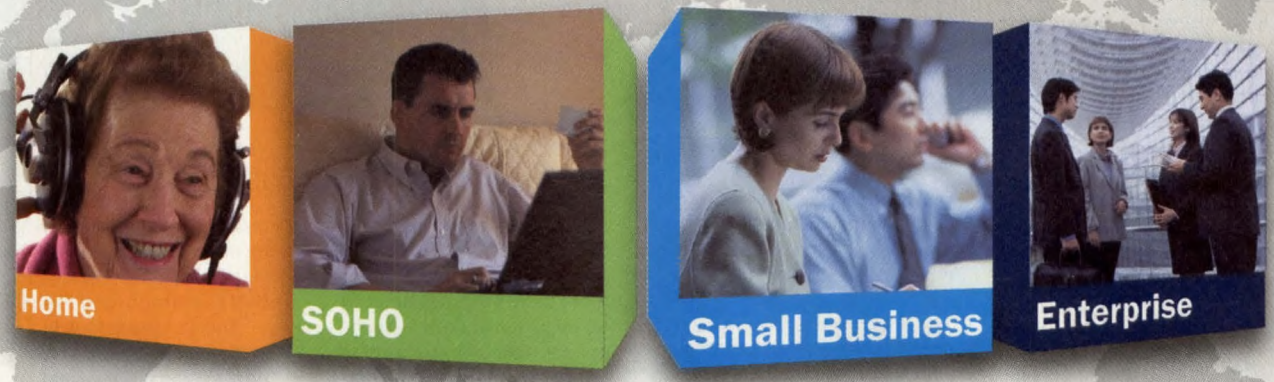

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BitTorrent

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- Redundant power supply (optional)
- Anti-virus(optional)

TS-411U

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Avidemux 2.3

Convert video with the tool that has it all.

If you like to encode or re-encode video, there are a number of tools for the job under Linux. Some of these include DVD-ripping features built-in, but not avidemux. Rather, avidemux focuses on doing everything else — which is an awful lot when it comes to video compression — and making it easy to use to boot.

If you've ever played with command line compression tools like ffmpeg, transcode or mencoder, you'll know these are insanely powerful programs capable of producing superbly high-quality formats.

They also have enough variable switches and options, some of which are literally not fully documented (especially with regards to h.263), and finding the best combination for your video format, bit-rate and quality can be a confusing exercise.

Avidemux takes this, adds basic video editing functions (cutting, filtering et al.) and puts it all into an easy-to-use GTK-based GUI. You can quickly and easily load a video and automatically crop it, resize it, encode it into another format, and apply all manner of effects such as deinterlacing, pulldown, noise removal and more. And, of course, do the same with the audio side as well.

Avidemux supports the AVI, OGM and MPEG containers; video encoders that include h.263, mpeg4, xvid4 and ffmpeg with a variety of presets for VCD, SVCD and DVD — and audio encoders that include Lame, FAAC, Vorbis and AC3. And within each of these there's the full gamut of optimisation options — such as qpel, trellis, 4mv for motion estimation and, naturally, two-pass encoding for video — and resampling, normalisation and gain for audio. If you need it, it's here. Finally, there are presets for various DVD conversions and even the PSP.

There's little to fault in Avidemux — it has it all (bar ripping) and it does it well.

Ashton Mills

CONTACT	Avidemux
ONLINE	http://fixounet.free.fr/avidemux
MARKET	Everyone
PRICE	Free

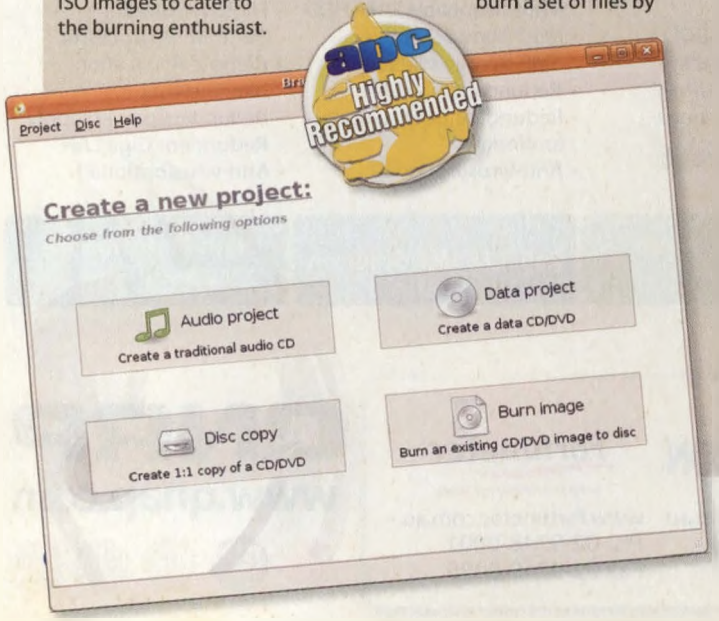
✔ Highly capable all-in-one conversion.

VERDICT ★★★★☆

✖ Ripping not built-in.

Brasero 0.51

A simple and easy to use tool for burning CDs and DVDs on the go.



While there are a plethora of CD and DVD burning applications under Linux, including the fully featured K3B and GnomeBaker among others, these programs are usually laden with options and functionality to build all manner of CD, DVD and ISO images to cater to the burning enthusiast.

But sometimes, all you want to do is burn a couple of files — and without the need to create a new "project".

This is where Brasero helps. Formerly known as Bonfire, Brasero sports an interface similar to Nero where you can select to burn a set of files by simply dragging them to the Brasero window and clicking burn. No need to worry about images or formats, just click and go. This may not appeal to everyone, but it even simplifies some of the options that are available — for example, Joliet support is called "increase compatibility for Windows systems".

In addition to making data or audio CDs and DVDs, Brasero will let you simply burn an ISO or do a direct disc-to-disc copy. And, if you need it, it will erase CD/DVD-RWs and also check burned discs for integrity.

Unlike many burners that are front ends for mkisofs and cdrecord, Brasero ties into the Gnome back end and draws upon gstreamer and the Nautilus burning engine. Even though it's at version 0.51, Brasero is eminently functional and makes it a snap to burn an image or throw a couple of files on CD for a mate. In many ways, Brasero is a shining example of the Gnome desktop — simple, lightweight and effective. And yes, if you're planning to burn more than one of a particular image, you can even save your own projects — but at least it's optional!

Currently only source packages are available direct from the SourceForge download: however, some distributions, including Ubuntu, already have the binary package in their respective software catalogues.

Ashton Mills

CONTACT	Brasero
ONLINE	http://perso.orange.fr/bonfire
MARKET	Everyone
PRICE	Free

✔ A simple CD and DVD burning app.

VERDICT ★★★★☆

✖ None, but still in development.

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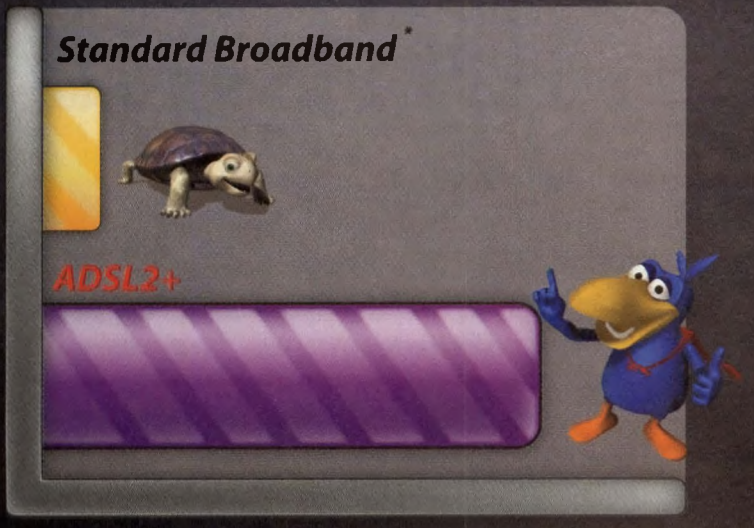

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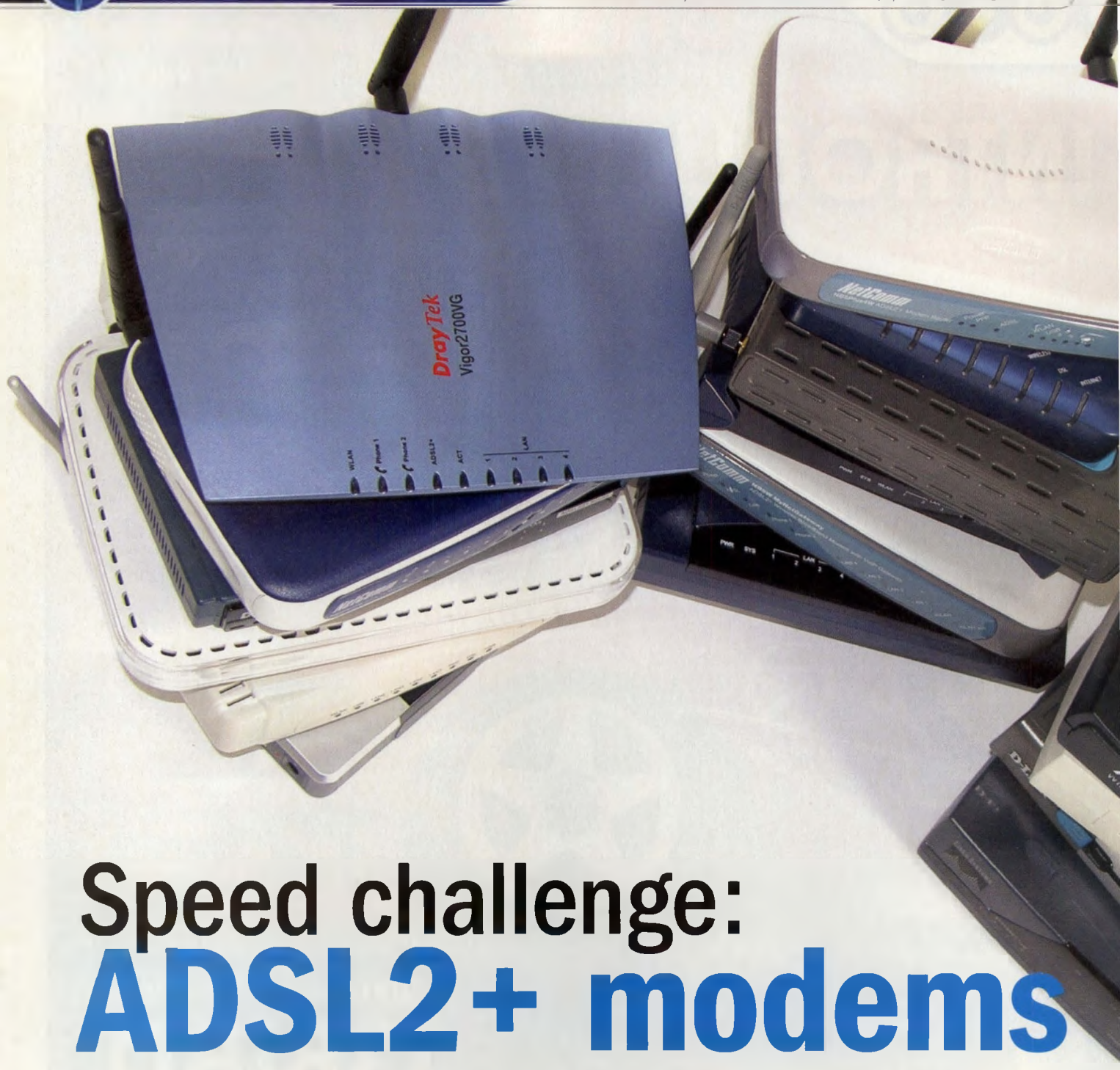


Speed challenge: ADSL2+ modems

We picked 20 of the top ADSL2+ modems, shipped them to Internode's test lab in Adelaide, bundled *Dan Warne* onto an Airbus and let him loose on them for 10 days of stress-testing. One Ericsson DSLAM, numerous Internode technical experts and 1km, 3.5km and 5km phone lengths of copper wire. Why did we go to this insane amount of trouble? Because when you're leeching, every bit of extra speed counts.

THE players twenty TESTED

VENDOR	MODEL	PRICE	ONLINE	PHONE
1. ASUS	aam6020vi-t4	$129	www.asus.com.au	1300 278 788
2. Belkin	f5d7633au4a	$169.95	www.belkin.com.au	1800 235 546
3. Belkin/iiNet	f1Pl241Egau	$279.95	www.iinet.com.au	1800 235 546
4. Billion	7402GL-M	$199	www.billion.com.au	(08) 8322 9544
5. Billion	7404VGP-M	$299	www.billion.com.au	(08) 8322 9544
6. Cisco	877W	$1,622	www.cisco.com.au	(02) 8446 6000
7. D-Link	DSL-G604T	$179	www.dlink.com.au	1300 700 100
8. D-Link	DVA-G3340S	$299	www.dlink.com.au	1300 700 100
9. Draytek	2700GE	$149.95	www.draytek.com.au	1300 881 782
10. Draytek	2700VG	$289.95	www.draytek.com.au	1300 881 782
11. Dynalink	RTA1025W	$179	www.dynalink.com.au	1800 653 962
12. Dynalink	RTA1046VW	$279	www.dynalink.com.au	1800 653 962
13. LevelONE	WBR-3460-AE	$169.95	www.levelone.com.au	1300 881 782
14. Linksys	WAG54G (V3)	$199	www.linksys.com.au	1800 678 808
15. Linksys	WAG54GP2 (V2)	$299	www.linksys.com.au	1800 678 808
16. Netcomm	NB5Plus4W	$159	www.netcomm.com.au	(02) 9424 2000
17. Netcomm	NB6Plus4W	$159	www.netcomm.com.au	(02) 9424 2000
18. Netcomm	NB9W	$299	www.netcomm.com.au	(02) 9424 2000
19. Netgear	DG834GV	$299	www.netgear.com.au	1300 361 069
20. OPEN	625W	$239	www.opennw.com	(03) 8613 0500

DAN WARNE – NEWS AND ONLINE EDITOR

Dan Warne is APC's News and Online Editor and former news editor of Whirlpool.net.au. He's our resident broadband guru, and has been following high speed internet since BigPond Cable was first introduced. Dan wrote last year's *ADSL2+ Modem authoritative speed test.*

WOAH! KNOCKED BACK!

This year, two modem manufacturers gave us the cold shoulder: Zyxel ignored us completely when we invited them to participate and Thomson refused to send us hardware to be tested. Neither company gave a reason why – though it should be noted that in past labs challenges both Zyxel and Thomson hardware has recorded poor results on some (not all) models. Whatever the reason behind their refusal to be involved, you do have to ask yourself whether you want to spend money on a modem from a company that doesn't want to be subjected to independent testing.

On forums, you'll often see people boasting about their 23Mbit/s line sync speed, but ask them what their actual throughput is, and they'll often have no idea. The truth is, most of us look at the speed that the modem connects at and then don't pay a great deal of attention to real throughput speed because it tends to fluctuate.

However, you really *should* care about throughput speed, because our testing shows that line sync speed and actual throughput speed often bear very little relation to one another.

This year, we decided to test two very distinct categories of modem/router:

1. Budget models that offer the basics: ADSL2+, four Ethernet ports and 802.11g Wi-Fi for less than $200.

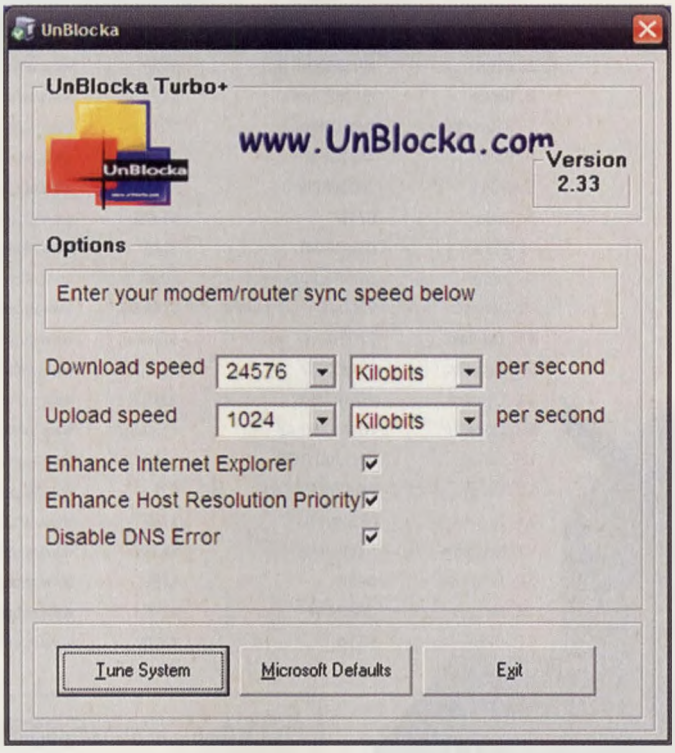
2. All-in-one units that offer all of the above features plus integrated VoIP ports and cost less than $350.

UNBLOCK YOUR NET CONNECTION

Last year, we tested with a stock-standard Windows XP installation, based on the philosophy that it would most closely represent what the average consumer would experience. And boy, did the throughput speeds mostly suck compared to line sync speed. Although that test is certainly a valid picture of what most people will actually experience, it's also unfortunately a great demonstration of how bad the default TCP/IP settings in Windows XP are. This year we thought we'd give the modems a better chance to open up full-throttle by tweaking the default Windows TCP/IP settings.

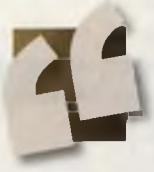
Normally we steer clear of tweaking a test bench away from "plain vanilla", because it may not be possible for readers to easily recreate those settings at home. However, in this case anyone can download the freeware app we used, called Unblocka, to set ideal TCP/IP settings for their installation of XP.

Unblocka asks you to enter into it the sync speed of your ADSL2+ connection and uses those figures to work out how much data should be coming through in a one-second period. It then tunes your TCP/IP settings so that your computer only sends an acknowledgement back to the remote computer every second rather than hundreds of times a second.



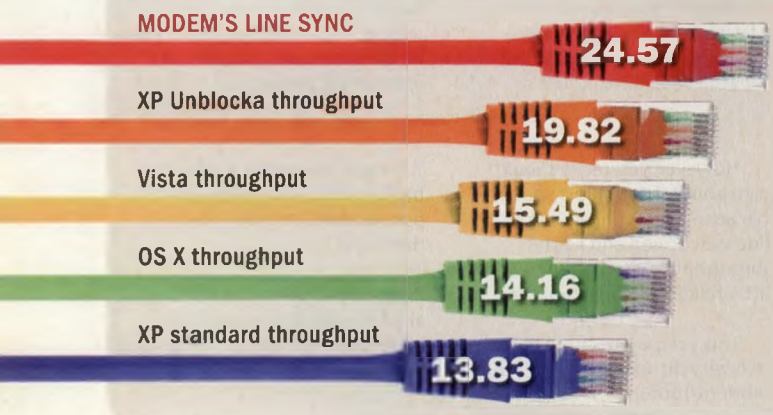
At ADSL2+ speeds, about 2MB of data can be received in one second. However, Windows' default setting is to send an acknowledgement after every 8-16KB! This setting made sense in the days of dialup, because that was about two or three seconds worth of data transmission, and if the data became corrupted, only that amount would have to be retransmitted. But in the era of high-speed broadband, it means a *significant* amount of your network bandwidth is taken up with gazillions of acknowledgement packets.

This is further frustrated by the fact that long-range international connections have an inherent "latency" — the time it takes for a packet of data to travel thousands of kilometres under the ocean over fibre-optic cable. Typically, latency to the US is around 200ms — a fifth of a second — so if the computer at the other end has to wait to receive your acknowledgement packet back before sending more data, it creates a stop-start-stop-start data flow that doesn't fully fill your pipe to capacity. Extending the time period between acknowledgement packets (called the TCP receive window) means the guy at the other end can just keep pushing data down the pipe — rather than stopping every few hundred milliseconds to wait for your acknowledgement.



A SIGNIFICANT AMOUNT OF YOUR NETWORK BANDWIDTH IS TAKEN UP WITH GAZILLIONS OF ACKNOWLEDGEMENT PACKETS

DOES VISTA FIX THE PROBLEM?



Microsoft has rewritten the TCP/IP stack in Windows Vista from scratch in an attempt to resolve the performance issues in XP's networking. Before commencing a file transfer, the new stack measures network latency and adjusts its receive window (the period of time before it sends an acknowledgement packet, as discussed above) for best performance. But does it really work as claimed?

We tested four operating system configurations: XP in its basic configuration, XP tweaked with Unblocka, Vista in its basic configuration and — for curiosity's sake — Mac OS X 10.4.8. The surprising results? XP tweaked with Unblocka still woops Vista's arse. Vista is certainly improved over XP — but there still seems to be a heck of a lot of room for improvement.

To ensure that the operating systems were the only factors affecting network speed, we tested using the same modem (the fastest one in our 1km testing — Dynalink RTA1046VW) at 1km line length and used a single session without rebooting the modem.

TOP ADSL2+ PERFORMERS

This year, it was noticeable that modem makers had been hard at work tweaking their firmware over the last 12 months.

All the modems were closer in performance. For example, the lowest performing modem at 1km, the Draytek 2700GE, still achieved a reasonable result, clocking in at 14.5Mbit/s of real throughput. That's 27% slower than the fastest modem at 1km, the Dynalink RTA1046W, which achieved 19.85Mbit/s, but it's not the vast chasm in performance we've seem in previous roundups.

The best way of assessing a modem generally is to look at the average throughput speed across both 1 and 3.5km. Here, Netcomm and Dynalink (recently acquired by Netcomm) dominated this year.

EDITOR'S CHOICE

This year the Dynalink RTA1025W took out the top spot. This modem is a bargain at only $179. It performed well in our ADSL2+ and wireless tests and was also a strong performer in the Annex M tests. The only area for improvement is long-range wireless, where the RTA1025W only managed 800Kbit/s, but this won't be a significant concern for most people.

HIGHLY RECOMMENDED

The Dynalink RTA1046VW walked away with this year's award. We found it has similarly good performance to the RTA1025W, but for your extra $100 you get two inbuilt VoIP ports for you to connect standard phones to and make two calls at the same time. And if you want the fastest possible modem at 1km, this is it: 19.85Mbit/s.

BOAT ANCHORS NAMED AND SHAMED

Which modems are the stinkers? It's actually a tough question to answer this year, because no single modem sucked across the board. However, one modem that didn't quite make the cut was the aging Netcomm NB5Plus4W. Although third fastest at 1km, it only scraped in at sixteenth and seventeenth on the 3.5km and 5km speed tests. Netcomm's newer and identically priced NB6Plus4W did much better. The Linksys WAG54GP2 had lousy wireless (around 6Mbit/s).

Actual throughput: downstream/upstream Mbit/s

TOP 5 at 1km

1. Dynalink RTA1046VW 19.85/0.83
2. Dynalink RTA1025W 19.74/0.86
3. Netcomm NB5Plus4W 19.50/0.83
   Cisco 877W 19.47/0.85*
4. Netcomm NB6Plus4W 19.47/0.80
5. Belkin f5d7633au4a 19.36/0.83

TOP 5 at 5km

Cisco 877W 4.41/0.78*

1. Netcomm NB9W 4.37/0.74
2. OPEN Networks 625W 4.28/0.77
3. LevelONE WBR-3460-A 4.27/0.73
4. ASUS aam6020vi-t 4.21/0.72
5. Belkin F5D7633au4a 4.19/0.76

TOP 5 at 3.5km

1. Dynalink RTA1025W 8.70/0.85
2. Draytek 2700GE 8.53/0.83
3. Netcomm NB9W 8.51/0.82
4. Draytek 2700VG 8.50/0.78
   Cisco 877W 8.38/0.86*
5. LevelONE WBR-3460-A 7.94/0.81

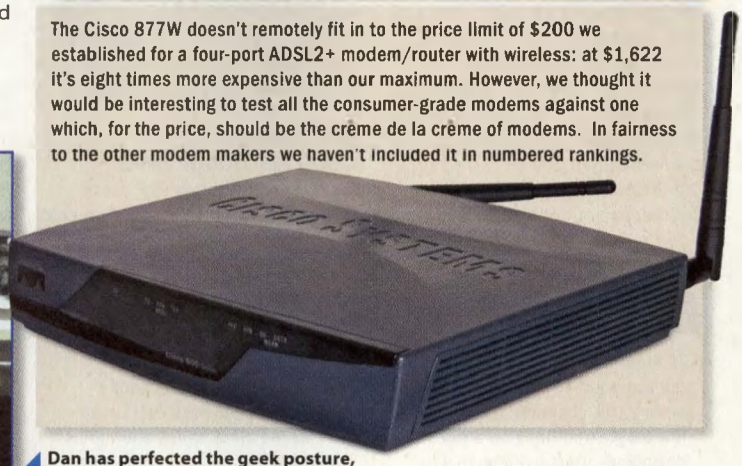
TOP 5 at 1 and 3.5km

1. Dynalink RTA1025W 14.22/0.85
   Cisco 877W 13.93/0.85*
2. Netcomm NB9W 13.90/0.82
3. Dynalink RTA1046W 13.70/0.83
4. Netcomm NB6Plus4W 13.67/0.81
5. Billion 7402GL-M 13.16/0.80

* included for comparison

WHY WE INCLUDED THE CISCO 877W

The Cisco 877W doesn't remotely fit in to the price limit of $200 we established for a four-port ADSL2+ modem/router with wireless: at $1,622 it's eight times more expensive than our maximum. However, we thought it would be interesting to test all the consumer-grade modems against one which, for the price, should be the crème de la crème of modems. In fairness to the other modem makers we haven't included it in numbered rankings.



Dan has perfected the geek posture, optimised for maximum slouch.

IS WIRELESS SLOWING DOWN YOUR ADSL2+?

It probably won't come as a shock to you that 802.11g performs nowhere near its "54Mbit/s" claim, but you might be surprised to learn that some of the modems only achieved 6 or 7Mbit/s on 802.11g, even at close range! Accessing a 20Mbit/s internet connection through a 7Mbit/s wireless connection means losing out on 13Mbit/s of speed.

This year, our testing of the modems' wireless performance showed some interesting anomalies: at *very* close range – less than a metre – some modems really struggled. Yet at medium range (about 5m away), their speed significantly increased. For example, the Netcomm NB5Plus4W only managed a piddling 6.68Mbit/s at close range but achieved 22.42Mbit/s at medium range. Similar story with the Netgear DG834GV, Belkin f5d7633au4a and D-Link DSL-G604T. The moral? If you're using your computer wirelessly very close to your modem you should probably plug in via Ethernet.

The wireless results at different distances varied considerably. Looking at the three tables of results, it's difficult to see any one modem that performed well across all distances. However, taking an average of all three distances, the most impressive result was from the LevelONE WBR-3460-AE (20.19Mbit/s). This is the modem to choose if you want good wireless coverage across an entire floor of an office. Draytek 2700GE also scored well at 17.27Mbit/s. Check our full results on page 54 for the modems and their wireless performance.

ANNEX M: DOUBLE YOUR UPSTREAM

Engineering standards bodies sure know how to come up with sexy names, don't they? For example: Annex M. Doesn't that titillating name send shivers of anticipation down your spine... Sorry, did you say something? We just fell asleep there for a moment.

In fact, Annex M is a big leap forward for broadband in Australia. You probably know that the "A" in "ADSL" stands for asymmetric, meaning that the upstream and downstream speeds are not matched. In standard ADSL2+, downstream is up to 24Mbit/s and upstream is 1Mbit/s. For most people, 1Mbit/s is enough, but there are a few circumstances where more upstream is really handy: running a mail or web server on an ADSL connection rather than a pricey dedicated link, or... drum roll... peer-to-peer file sharing.

P2P gets a big boost from having more upstream bandwidth because most P2P protocols — BitTorrent particularly — are designed to reward users who are sending data to other users fast.

Annex M gives you up to 2.5Mbit/s of upstream speed in exchange for a roughly equivalent drop in downstream speed. So, theoretically, if you were getting 20Mbit/s down and 1Mbit/s up before, you might get 18.5Mbit/s down and 2.5Mbit/s up with an Annex M connection.

With that whopping upstream pipe, you'll find that you more frequently get top downstream speeds on BitTorrent. It's also useful for companies wanting to run multiple VoIP lines at once — with 2.5Mbit/s upstream, many 64Kbit/s lines can be run simultaneously with no degradation in sound quality.

TOP 5 at 1km
RANKED BY UPSTREAM

1. OPEN Networks 625W – 18.56/2.08
2. Netcomm NB9W – 18.66/2.04
3. Dynalink RTA1046VW – 19.36/2.02
4. Dynalink RTA1025W – 19.52/2.02
5. Netcomm NB6Plus4W – 19.32/1.99

TOP 5 at 1km
RANKED BY DOWNSTREAM

1. Dynalink RTA1025W – 19.52/2.02
2. Dynalink RTA1046VW – 19.36/2.02
3. Netcomm NB6Plus4W – 19.32/1.99
4. Belkin f1PI241EGau – 18.98/1.42
5. Netcomm NB9W – 18.66/2.04

TOP 5 at 3.5km
RANKED BY DOWNSTREAM

1. Netcomm NB6Plus4W 7.31/1.40
2. Netcomm NB9W 7.31/1.37
3. Dynalink RTA1046VW 7.31/1.35
4. OPEN 625W 7.04/1.79
5. Dynalink RTA1025W 6.97/1.41

TOP 5 at 5km
RANKED BY DOWNSTREAM

1. Netcomm NB9W 2.95/0.79
2. OPEN 625W 2.74/1.23
3. Dynalink RTA1046VW 2.71/0.79
4. Netcomm NB6Plus4W 2.70/0.81
5. Dynalink RTA1025W 2.70/0.85

WHY ANNEX M IS GOOD FOR DODGY LINES

It's not just hardcore P2P users that stand to benefit from Annex M. In *APC*'s testing, we observed a surprising anomaly: even though Annex M is *supposed* to reduce downstream speeds in exchange for a boost in upstream speed, modems quite often sync at better speeds on both upstream and downstream when in Annex M mode.

For example, the Draytek 2700GE achieved an actual throughput speed of 14.5Mbit/s in standard ADSL2+ mode at 1km, but achieved 17.37Mbit/s in Annex M mode. And Annex M still gave a great boost in upstream speed: 1.75Mbit/s compared to 0.83Mbit/s.

Also, at longer line lengths, several of the modems achieved better throughput speeds in Annex M than standard 2+. For example, Belkin f1PI241EGau at 5km could download at 2.46Mbit/s and upload at 1.14Mbit/s in Annex M mode, but it only achieved 2.14Mbit/s and 0.86Mbit/s in standard 2+.

Admittedly, these results are anomalous — generally the modems did follow the pattern of a small drop in downstream speed in exchange for greater upstream, but it just goes to show that there may be some non-obvious benefits in choosing an Annex M plan if you've been despairing over a dodgy phone line that doesn't support particularly good ADSL2+ speed.

Annex M is currently only available through Internode, though other ISPs, including iiNet, are evaluating it. The plans are generally marketed towards small/medium business users and therefore are a bit pricier than regular home user plans.

HOW WE TESTED

There are two ways to test modems: the lazy way – by plugging it in to a home ADSL connection of unknown line length and firing up a few downloads. Or the thorough way, by doing it in a controlled lab environment where the phone line length can be adjusted to see how a modem copes at short, medium and long distances from the "exchange". *APC* takes the latter approach because we know your phone line isn't the same as ours.

We were grateful to have the assistance of ADSL2+ ISP Internode, which made its Adelaide test lab available to us for the testing of the modems. 'Node provided access to a test DSLAM, DSL experts and 500-metre coils of copper twisted pair (the same copper wiring used for garden variety phone lines.) The coils were connected to a Krone block which allowed us to adjust line length in 500-metre increments, simply by moving the position of a plug.

We used an Ericsson EDN312xe DSLAM for testing and had direct access to its "PEM" software to monitor modem line sync speed and other connection properties (for example, whether the modem had connected as regular ADSL2+ or the new ADSL2+ Annex M with higher upstream speed.)

Because the Internet introduces unpredictable performance factors, we used a dedicated FreeBSD server hosted on Internode's network to pump out data as fast as the modems were able to take it. The server had no other users apart from *APC*. We used FTP to download and upload large files from the server in order to test real throughput speed.

We also tested wireless performance because, believe it or not, it can be slower than the ADSL2+ connection itself.

For the wireless testing, we used the open source iPerf software running on a server and as a client on an Intel Centrino laptop. IPerf sends data from a server as fast as a client can receive it.

The Ericsson DSLAM we tested with uses a Broadcom chipset for ADSL modulation. Modems that use a Broadcom chipset therefore have a natural advantage. Check our comparison table on page 58 to see what each modem uses.

We locked the modems to 802.11g mode and used WPA-PSK encryption to simulate the processor load of a normal encrypted home network. This ensured both wireless range and the modem CPU's ability to encrypt data at high speed without conking out. The modems were all tested on Channel 1, which didn't conflict with any other network in the vicinity (the nearest being Channel 6, non-overlapping).

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THE RESULTS ADSL2+

1km ADSL2+

		Down Mbit/s	Up Mbit/s
Dynalink	RTA1046VW	19.85	0.83
Dynalink	RTA1025W	19.74	0.86
Netcomm	NB5Plus4W	19.50	0.83
Netcomm	NB6Plus4W	19.47	0.80
Cisco	877W	19.47	0.85
Belkin	f5d7633au4a	19.36	0.83
Netcomm	NB9W	19.28	0.82
Netgear	DG834GV	19.25	0.82
Belkin iiNet	f1PI241EGau	18.98	0.86
Linksys	WAG54Gv3	18.98	0.82
OPEN	625W	18.86	0.84
Billion	7402GL-M	18.86	0.82
ASUS	aam6020vi-t4	18.68	0.82
LevelONE	WBR-3460-AE	18.18	0.82
Billion	7404VGP-M	18.07	0.81
D-Link	DSL-G604T	17.60	0.83
D-Link	DVA-G3340S	17.25	0.80
Draytek	2700VG	17.07	0.78
Linksys	WAG54GP2 V2	16.92	0.81
Draytek	2700GE	14.50	0.83

3.5km ADSL2+

		Down Mbit/s	Up Mbit/s
Dynalink	RTA1025W	8.70	0.85
Draytek	2700GE	8.53	0.83
Netcomm	NB9W	8.51	0.82
Draytek	2700VG	8.50	0.78
Cisco	877W	8.38	0.86
LevelONE	WBR-3460-AE	7.94	0.81
Netcomm	NB6Plus4W	7.87	0.82
Linksys	WAG54GP2 V2	7.78	0.83
Dynalink	RTA1046VW	7.56	0.82
ASUS	aam6020vi-t4	7.54	0.81
Billion	7402GL-M	7.46	0.77
Billion	7404VGP-M	7.43	0.79
D-Link	DSL-G604T	7.08	0.82
D-Link	DVA-G3340S	6.71	0.80
Belkin	f5d7633au4a	6.70	0.82
Netcomm	NB5Plus4W	6.56	0.78
OPEN	625W	6.42	0.84
Linksys	WAG54Gv3	6.14	0.78
Belkin iiNet	f1PI241EGau	5.54	0.86
Netgear	DG834GV	4.87	0.79

5km ADSL2+

		Down Mbit/s	Up Mbit/s
Cisco	877W	4.41	0.78
Netcomm	NB9W	4.37	0.74
OPEN	625W	4.28	0.77
LevelONE	WBR-3460-AE	4.27	0.73
ASUS	aam6020vi-t4	4.21	0.72
Belkin	f5d7633au4a	4.19	0.76
Linksys	WAG54GP2 V2	4.18	0.74
D-Link	DSL-G604T	4.06	0.70
Dynalink	RTA1025W	3.94	0.77
Draytek	2700GE	3.86	0.73
Netcomm	NB6Plus4W	3.78	0.73
Draytek	2700VG	3.76	0.70
Billion	7404VGP-M	3.66	0.66
D-Link	DVA-G3340S	3.46	0.73
Dynalink	RTA1046VW	3.08	0.74
Billion	7402GL-M	3.07	0.70
Netcomm	NB5Plus4W	2.55	0.78
Linksys	WAG54Gv3	2.16	0.80
Belkin iiNet	f1PI241EGau	2.14	0.86
Netgear	DG834GV	2.07	0.79

AVERAGE of 1km and 3.5km

		Down Mbit/s	Up Mbit/s
Dynalink	RTA1025W	14.22	0.85
Cisco	877W	13.93	0.85
Netcomm	NB9W	13.90	0.82
Dynalink	RTA1046VW	13.70	0.83
Netcomm	NB6Plus4W	13.67	0.81
Billion	7402GL-M	13.16	0.80
ASUS	aam6020vi-t4	13.11	0.81
LevelONE	WBR-3460-AE	13.06	0.81
Belkin	f5d7633au4a	13.03	0.83
Netcomm	NB5Plus4W	13.03	0.81
Draytek	2700VG	12.79	0.78
Billion	7404VGP-M	12.75	0.80
OPEN	625W	12.64	0.84
Linksys	WAG54Gv3	12.56	0.80
Linksys	WAG54GP2 V2	12.35	0.82
D-Link	DSL-G604T	12.34	0.83
Belkin iiNet	f1PI241EGau	12.26	0.86
Netgear	DG834GV	12.06	0.80
D-Link	DVA-G3340S	11.98	0.80
Draytek	2700GE	11.51	0.83

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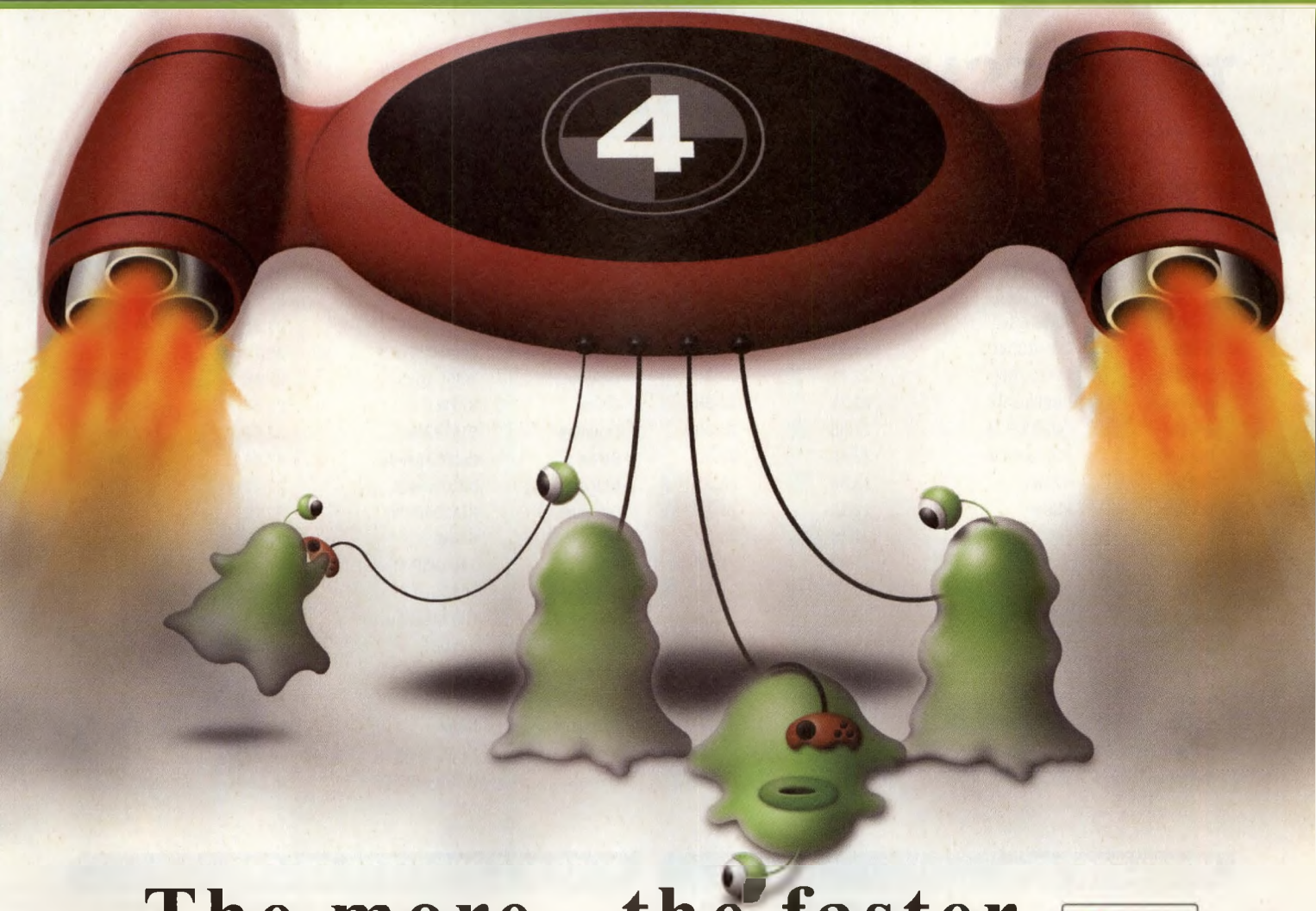

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THE RESULTS WIRELESS

WIRELESS 1m

		Down Mbit/s	Up Mbit/s
ASUS	aam6020vi-t4	24.08	21.52
LevelONE	WBR-3460-AE	24.07	13.90
Linksys	WAG54Gv3	24.02	15.07
D-Link	DVA-G3340S	23.93	15.38
Dynalink	RTA1025W	22.71	22.34
Netcomm	NB6Plus4W	22.71	22.58
Billion	7404VGP-M	22.58	23.39
Dynalink	RTA1046VW	22.45	22.59
OPEN	625W	22.38	22.23
Netcomm	NB9W	22.10	21.70
Billion	7402GL-M	21.78	23.34
Draytek	2700GE	21.39	21.28
Draytek	2700VG	20.77	21.59
Belkin iiNet	f1PI241EGau	20.52	19.35
Cisco	877W	18.06	18.38
D-Link	DSL-G604T	9.39	5.51
Belkin	f5d7633au4a	9.02	6.01
Linksys	WAG54GP2 V2	8.53	6.69
Netgear	DG834GV	8.41	5.17
Netcomm	NB5Plus4W	6.68	3.68

WIRELESS 5m

		Down Mbit/s	Up Mbit/s
D-Link	DVA-G3340S	24.81	15.66
LevelONE	WBR-3460-AE	24.25	13.96
D-Link	DSL-G604T	23.86	14.52
ASUS	aam6020vi-t4	23.78	21.97
Linksys	WAG54Gv3	23.18	13.78
Cisco	877W	22.67	22.50
Dynalink	RTA1025W	22.64	22.56
Belkin	f5d7633au4a	22.54	21.90
Netcomm	NB5Plus4W	22.42	22.60
Dynalink	RTA1046VW	22.16	18.14
OPEN	625W	22.10	20.92
Billion	7404VGP-M	21.83	22.56
Billion	7402GL-M	21.18	24.77
Belkin iiNet	f1PI241EGau	20.72	18.91
Draytek	2700GE	20.31	21.75
Netgear	DG834GV	19.94	20.84
Draytek	2700VG	19.51	22.34
Netcomm	NB9W	18.37	19.98
Netcomm	NB6Plus4W	18.34	18.52
Linksys	WAG54GP2 V2	8.54	6.44

WIRELESS 30m

		Down Mbit/s	Up Mbit/s
Belkin	f5d7633au4a	13.41	12.91
LevelONE	WBR-3460-AE	12.25	5.83
Draytek	2700GE	10.11	11.47
D-Link	DSL-G604T	10.08	9.34
Linksys	WAG54GP2 V2	6.18	4.18
Netcomm	NB5Plus4W	5.96	8.62
Netgear	DG834GV	5.70	7.40
D-Link	DVA-G3340S	4.94	6.50
Linksys	WAG54Gv3	2.54	2.76
Dynalink	RTA1046VW	1.98	1.87
Billion	7404VGP-M	1.61	3.26
Netcomm	NB6Plus4W	1.33	1.67
Belkin iiNet	f1PI241EGau	1.21	1.38
Cisco	877W	1.21	3.05
Dynalink	RTA1025W	0.85	3.46
ASUS	aam6020vi-t4	0.80	0.21
OPEN	625W	0.54	1.08
Draytek	2700VG	0.37	3.09
Billion	7402GL-M	0.32	0.23
Netcomm	NB9W	0.00	0.00

AVERAGE WIRELESS SPEEDS

		Down Mbit/s	Up Mbit/s
LevelONE	WBR-3460-AE	20.19	0.96
D-Link	DVA-G3340S	17.89	0.79
Draytek	2700GE	17.27	0.82
Linksys	WAG54Gv3	16.58	0.71
ASUS	aam6020vi-t4	16.22	0.67
Dynalink	RTA1046W	15.53	0.66
Dynalink	RTA1025W	15.40	0.64
Billion	7404VGP-M	15.34	0.65
OPEN	625W	15.01	0.62
Belkin	f5d7633au4a	14.99	0.76
D-Link	DSL-G604T	14.45	0.70
Billion	7402GL-M	14.42	0.59
Belkin iiNet	f1PI241EGau	14.15	0.59
Netcomm	NB6Plus4W	14.13	0.59
Cisco	877W	13.98	0.58
Draytek	2700VG	13.55	0.56
Netcomm	NB9W	13.49	0.55
Netcomm	NB5Plus4W	11.69	0.54
Netgear	DG834GV	11.35	0.53
Linksys	WAG54GP2 V2	7.75	0.39

THE RESULTS ADSL2+ ANNEX M

1km ANNEX M

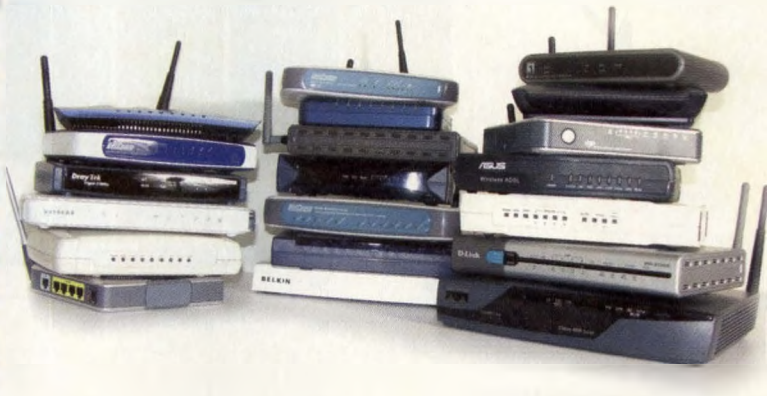
		Down Mbit/s	Up Mbit/s
Dynalink	RTA1025W	19.52	2.02
Dynalink	RTA1046VW	19.36	2.02
Netcomm	NB6Plus4W	19.32	1.99
Belkin iiNet	f1Pl241EGau	18.98	1.42
Netcomm	NB9W	18.66	2.04
OPEN	625W	18.56	2.08
Draytek	2700VG	18.44	1.73
Netgear	DG834GV	18.06	1.93
Billion	7402GL-M	17.73	1.83
Billion	7404VGP-M	17.42	1.81
Draytek	2700GE	17.37	1.75

3.5km ANNEX M

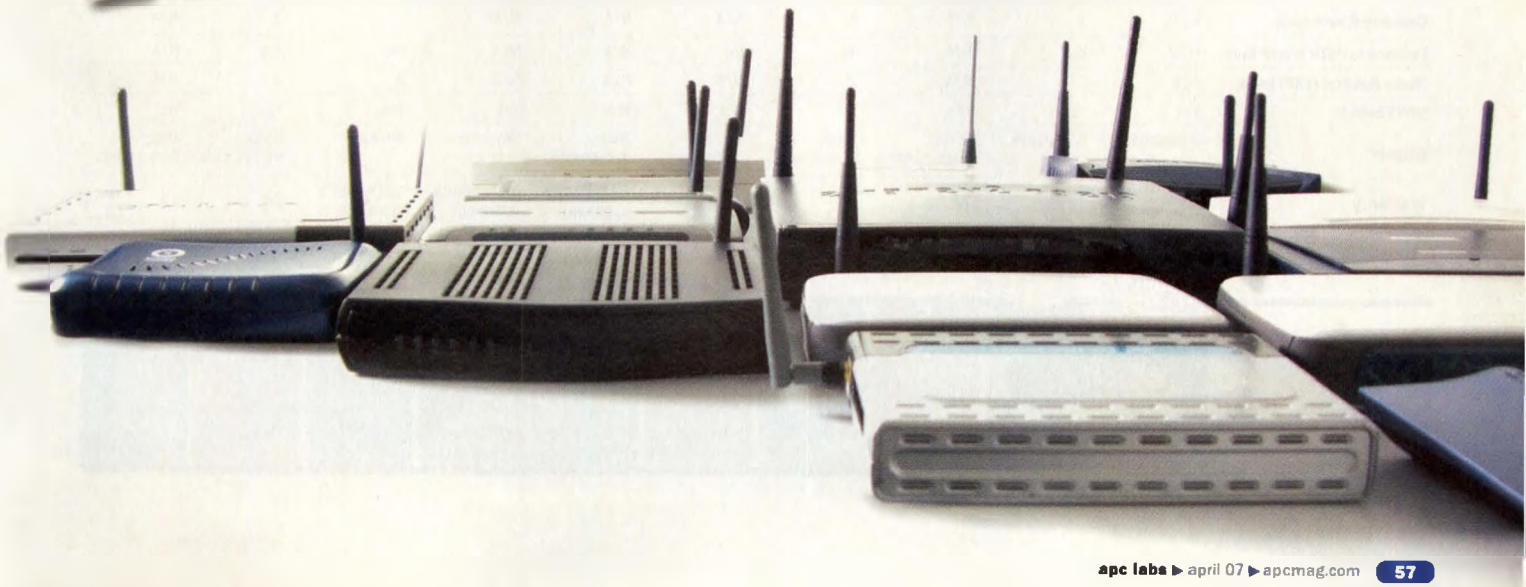
		Down Mbit/s	Up Mbit/s
Netcomm	NB6Plus4W	7.31	1.40
Netcomm	NB9W	7.31	1.37
Dynalink	RTA1046VW	7.31	1.35
OPEN	625W	7.04	1.79
Dynalink	RTA1025W	6.97	1.41
Draytek	2700VG	6.86	1.22
Draytek	2700GE	6.58	1.19
Billion	7402GL-M	6.38	1.49
Belkin iiNet	f1Pl241EGau	5.72	1.42
Billion	7404VGP-M	5.57	1.42
Netgear	DG834GV	4.92	1.65

5km ANNEX M

		Down Mbit/s	Up Mbit/s
Netcomm	NB9W	2.95	0.79
OPEN	625W	2.74	1.23
Dynalink	RTA1046VW	2.71	0.79
Dynalink	RTA1025W	2.70	0.85
Netcomm	NB6Plus4W	2.70	0.81
Draytek	2700VG	2.50	0.77
Belkin iiNet	f1Pl241EGau	2.46	1.14
Draytek	2700GE	2.44	0.70
Netgear	DG834GV	2.14	1.13
Billion	7402GL-M	2.12	1.02
Billion	7404VGP-M	1.51	0.98



NOT ALL THE MODEMS SUPPORTED ANNEX M, BUT IN MANY CASES A FIRMWARE TWEAK IS ONLY REQUIRED. THE ONES LISTED HERE ALREADY HAVE ANNEX M FIRMWARE AVAILABLE



	ASUS AAM6020VI-T4	BELKIN F5D7633AU4A	BELKIN iINET F1PI241EGAU	BILLION 7402GL-M	BILLION 7404VGP-M	CISCO 877W	DLINK DSL-G604T	DLINK DVA-G3340S	DRAYTEK 2700GE	DRAYTEK 2700VG
ADSL2+	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ADSL2+ Annex M	No	No	Yes	Yes	Yes	No	Yes	No	No	Yes
Ethernet ports	4	4	4	4	4	4	4	4	4	4
Wireless strength adjustable via web interface	Yes	No	No	Yes	Yes	No	Yes	Yes	No	No
WEP supported	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WPA supported	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WPA2 supported	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes
VoIP built in	No	No	Yes	No	Yes	No	No	Yes	No	Yes
Concurrent VoIP calls	No	N/A	2	N/A	2	N/A	N/A	2	N/A	2
Fallback to PSTN if VoIP fails	N/A	N/A	Yes	N/A	Yes	N/A	No	Yes	N/A	Yes
Phone handset (FXS) ports	N/A	N/A	2	N/A	2	N/A	No	2	N/A	1
DDNS built in	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Chipset	Texas Instruments	Texas Instruments	Texas Instruments	Globespan Virata	Globespan Virata	Alcatel	Texas Instruments	Texas Instruments	Infineon	Infineon
Warranty	24	Lifetime	24	24	24	12	36	36	24	24
✔	Fast at 5km; good wireless	Fast 1km and 5km speed	Good mid range wireless	Solid ADSL2+ speed	Solid ADSL2+ speed	Very fast ADSL2+	Good ADSL2+ at 5km	Good wireless at all distances	Fast at 3.5km; great Wi-Fi range	Good at 3.5km and 5km
✖	No Annex M	Not so good at 3.5km	Slow at 3.5km and 5km	Poor wireless at long range	Poor Annex M performance	Extremely overpriced	No Annex M	Generally poor ADSL2+ speed	Slowest ADSL2+ at 1km	Slow ADSL2+ at 1km

	DYNALINK RTA1025W	DYNALINK RTA1046VW	LEVELONE WBR-3460-AE	LINKSYS WAG54GP2 (V2)	LINKSYS WAG54G(V3)	NETCOMM NB5PLUS4W	NETCOMM NB6PLUS4W	NETCOMM NB9W	NETGEAR DG834GV	OPEN 625W
ADSL2+	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ADSL2+ Annex M	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes
Ethernet ports	4	4	4	4	4	4	4	4	4	4
Wireless strength adjustable via web interface	Yes	Yes	No	No	No	No	Yes	Yes	No	Yes
WEP supported	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WPA supported	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WPA2 supported	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes
VoIP built in	No	Yes	No	No	Yes	N/A	N/A	Yes	Yes	No
Concurrent VoIP calls	N/A	2	N/A	4	N/A	N/A	N/A	2	2	N/A
Fallback to PSTN if VoIP fails	N/A	Yes	N/A	No	No	N/A	N/A	Yes	Yes	N/A
Phone handset (FXS) ports	N/A	2	N/A	2	N/A	N/A	N/A	2	2	N/A
DDNS built in	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Chipset	Broadcom	Broadcom	Texas Instruments	Texas Instruments	Texas Instruments	Texas Instruments	Broadcom	Broadcom	Texas Instruments	Texas Instruments
Warranty	12	12	24	36	36	12 (+36mth upon reg)	12 (+36mth upon reg)	12 (+36mth upon reg)	24	12
✔	Awesome ADSL2+; Wi-Fi & Annex M	Fastest at 1km	Fantastic wireless, solid ADSL2+	Good ADSL2+ at 3.5km and 5km	Good ADSL2+ at 1km	Fast ADSL2+ at 1km	Fast ADSL2+ at all distances	Very good ADSL2+ and Annex M	Decent wireless range	Fast ADSL2+ 5km; good Annex M
✖	Poor wireless at 30m range	Not quite as fast as the 1025W	No Annex M	Appalling wireless speed	Poor ADSL2+ at 3.5km and 5km	Slow ADSL2+ at 3.5km and 5km	Average wireless at longer range	Poor wireless range	Poor ADSL2+ at 3.5km and 5km	Poor wireless speed at 30m

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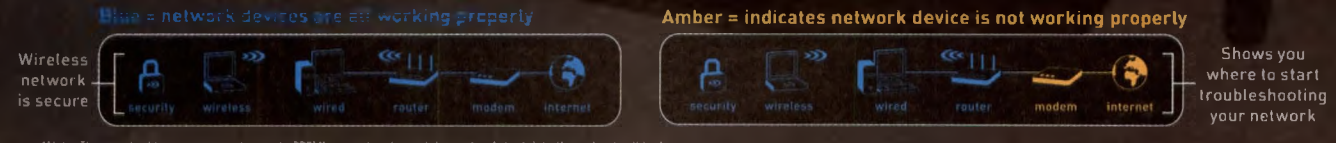

*Note: The standard transmission rate - up to 300Mbps - is the physical data rate. Actual data throughput will be lower.
** Note: Products were tested in an outdoor environment. Actual speed and distance will vary depending on interference, network traffic, building materials, and other conditions. Range and speed is determined using a Belkin N1 Wireless Router (F5D8231au4) and an N1 Wireless Notebook Card (F5D8011au) or N1 Wireless USB Adapter (F5D8051au).

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Internet Technology Awards 2007

APC would like to thank the people who nominated products and voted in the APC Internet Technology Awards. You have identified some of the most innovative technologies driving the internet and IP technology today.

The Award winners will be announced March 21 in an awards dinner at the Astral Restaurant, Star City Casino, Sydney and on apcmag.com.

A full special report will be in the May edition of *APC* magazine.

Why Internet Technology Awards?

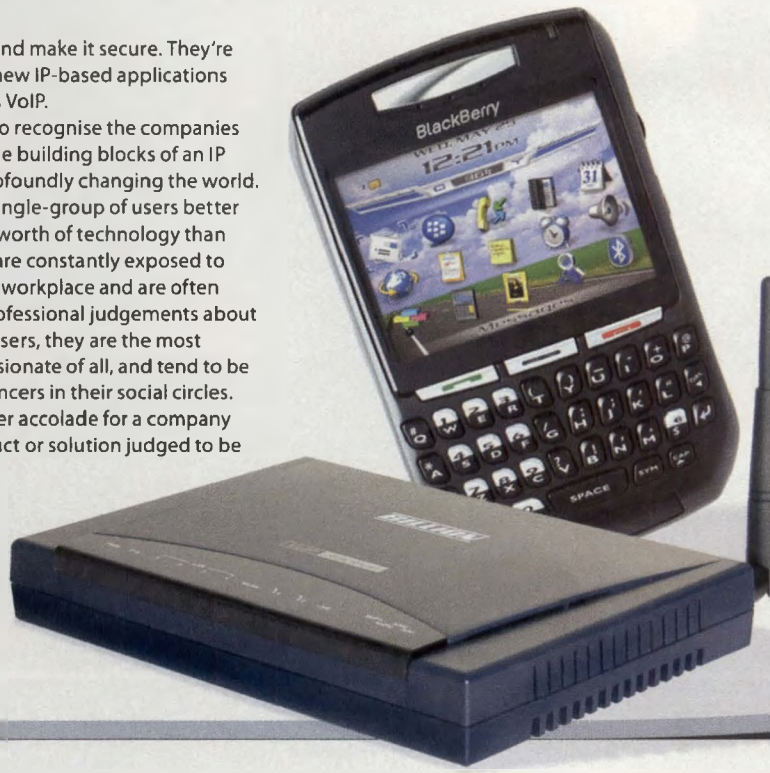
When prizes are given out for internet achievement it's normally for web sites and web design. But web sites are just the visible part of a massive technology spectrum that extends from code development tools and web servers to hosting companies and ad serving technology.

The *APC* Internet Technology Awards are about the products and systems that help create and deliver the net and make it secure. They're also about exciting new IP-based applications and services, such as VoIP.

The awards aim to recognise the companies that are providing the building blocks of an IP revolution that is profoundly changing the world.

There is no one single-group of users better placed to judge the worth of technology than *APC*'s readers. They are constantly exposed to new products in the workplace and are often required to make professional judgements about those products. As users, they are the most demanding and passionate of all, and tend to be the main tech influencers in their social circles.

There is no greater accolade for a company than to have a product or solution judged to be



Your potential. Our passion.™
Microsoft

Proudly supporting the
APC Internet Technology Awards 2007
and fostering innovation on the web

Microsoft Visual Studio
Develop richer, more powerful web applications with ease

Microsoft Forefront
Take control of your internet security

Google
hotels near sydney
Search Maps
Search the map
Find businesses
Get directions
Maps
Hotel Reservations
Select from a huge range of hotels with incredible savings
HotelClub.com.au/Discounts
Results 1-10 of about 4,504 for hotels near Sydney, NSW - Modify search
Categories: Hotel, Business Services
A Contemporary Hotels - more info »
229-231 Darlinghurst Rd, Darlinghurst, NSW 2010
(02) 9332 2011 -
B Epic Hotels - more info »
Bondi Beach, NSW 2026
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C Ibis Hotels - more info »
70 Murray St, Pyrmont, NSW 2009
(02) 9563 0888 -
D The Southern Cross Hotels Group - more info »
111 Goulburn St, Sydney, NSW 2000
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(02) 9279 4999
F Stamford Hotels - more info »
North Ryde, NSW 2113
(02) 9888 1077 - 4 reviews
INTRANET DASHBOARD
Welcome to the Intranet DASHBOARD Demonstration Site
Enhance Your Intranet
Skype
Barbara Anderson
(barbaraander4s)
Norton Internet Security 2007
Microsoft Visual Studio 2005 Professional Edition
symantec.
Sun
DELL

SOME OF THE PRODUCTS SHORTLISTED FOR THE *APC* INTERNET TECHNOLOGY AWARDS

Labs roundup: GPS nav systems

Do you have trouble finding your way around town? *Jenneth Orantia* takes a look at some of the GPS devices available to get you from A-to-B.

No matter how confident you are at navigation, travelling to unknown destinations comes part and parcel with driving a car. Traditionally, this entailed balancing a street directory precariously on your lap, all the while squinting at unfamiliar street names and trying to minimise road rage for the person driving impatiently behind you.

But in an age where everything from music to whole libraries are going digital, so too has the humble road directory. In-car GPS systems have been available in luxury cars for over a decade, but it's only in the last couple of years that portable navigation systems — regularly referred to as "sat-navs" — have become affordable enough for everyday users.

There are dozens of differences between the sat-nav models currently on the market, but the majority of them use the same SiRF Star III GPS chipset for interacting with GPS satellites (see "GPS: Who's tracking it?", at left, for more). Most also derive mapping data from the same Whereis/Sensis navigation database (currently at version 13 and updated yearly), so if one sat-nav leads you the wrong direction up a one-way street, chances are that every other sat-nav would do the same. Nor is this a hypothetical example; outdated mapping data may sometimes request that you drive off the edge of a freeway or through a closed road, so using your discretion is recommended!

Navman N40i

CONTACT	Navman
ONLINE	www.navman.com.au
MARKET	Everyone
PRICE	$849

✔ Navpix camera; extensive database

VERDICT ★★★½☆

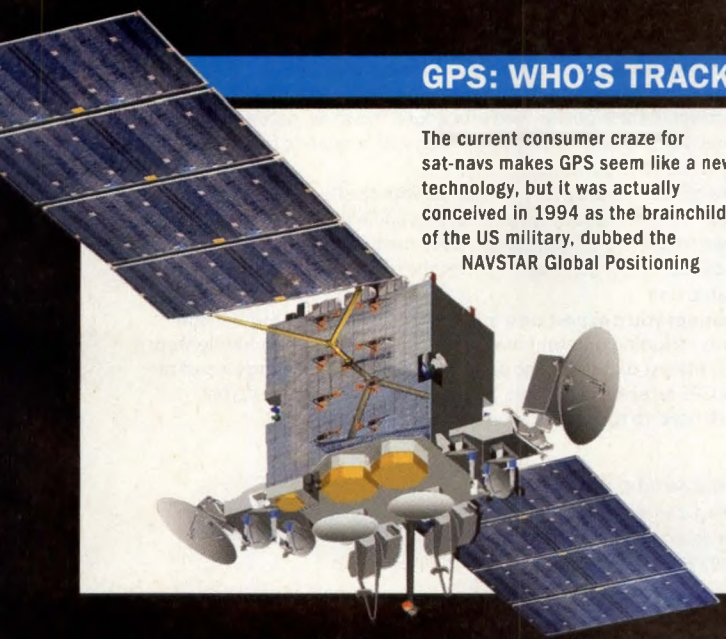
✖ Poor camera quality.

A picture may tell a thousand words when it comes to storytelling, but in Navman terms, it's more like 10 words or less — essentially, the address of the place you're navigating to. The N40i features a 1.3-megapixel camera that embeds the GPS location into photos that you take with it. Not only does this save you from having to fiddle with the tiny on-screen keyboard to enter addresses, but it also helps jog your memory of what the photo is actually *of*, given the sub-par quality of the camera.

Of course, this feature isn't so useful if you don't have a Navpix photo of where you're heading to — which is more often than not the case. If it's a popular tourist attraction, however, you should be able to download a Navpix of it from the Navman web site and load it onto the N40i with the supplied desktop software.

Both form factor and menu system tend more towards functionality than finesse, but we had no major complaints on either front. Getting a satellite lock is a tad slow, but the wealth of routing options — including the ability to avoid unsurfaced roads and tollways — makes up for it. The buttons on the right-hand side for guiding you to the nearest petrol and parking stations are also a nice touch.

GPS: WHO'S TRACKING IT?



The current consumer craze for sat-navs makes GPS seem like a new technology, but it was actually conceived in 1994 as the brainchild of the US military, dubbed the NAVSTAR Global Positioning System. Civilians were initially given partial access to the system two years later, with full worldwide access granted by the government in 2000. This then paved the way for a multitude of commercial applications, including road, forestry and marine navigation.

Controlled by the US Department of Defence, NAVSTAR consists of 24 GPS satellites that orbit the earth at an altitude of approximately 20,200 kilometres. Devices with a built-in GPS receiver use the system by locking onto at least four satellites to pinpoint precise locations – three satellites to triangulate latitude and longitude, and the fourth to determine altitude. Accuracy on commercial sat-navs is typically within 10 metres of the estimated figure.

The United States isn't the only country with stakes in GPS technology. Three other global navigation networks are currently in development by other nations: GLONASS, a Russian network with 12 active satellites; Beidou, which consists of three satellites controlled by China; and Galileo, a GPS system developed by the European Union with China, Israel, India, Morocco, Saudi Arabia, South Korea and Ukraine also participating in the program.

Garmin Nuvi 660

apc Editor's Choice

Once you go wide-screen on a sat-nav, reverting to a standard-sized display feels like driving without peripheral vision. The Nuvi 660's generously sized wide-screen display looks more like an LCD TV, measuring 4.3 inches diagonally and with an ample 480 x 272-pixel resolution.

A stellar screen is only the start of the 660's list of accomplishments. While it has the usual set of external speakers, a built-in FM transmitter lets you play audio wirelessly through the car speakers, which it does remarkably clearly. This isn't limited to the verbal turn-by-turn GPS directions — the 660 also doubles as a Bluetooth hands-free kit and an MP3 player.

As a sat-nav, the Nuvi 660 is the cream of the crop. Large buttons and a user-friendly interface make it a breeze to use out of the box, and the main navigation screen is clear, uncluttered and extremely customisable. Acquiring a GPS signal is usually speedy thanks to the flip-up antenna on the unit's rear, and routing and correcting wrong turns is also snappy.

Oddly, the Nuvi 660 doesn't support multiple stops on a single route, which limits its appeal for salespeople, couriers and the like. Text-to-speech technology makes verbal directions more intuitive ("Turn left in 200 metres at William St", rather than simply, "Turn left in 200 metres"), but the voice itself is too robotic.

CONTACT	GME
ONLINE	www.gme.net.au
MARKET	Everyone
PRICE	$1,199

✔ Display; built-in FM transmitter.

VERDICT ★★★★½

✖ Multiple stops not supported.

CoPilot live 6 Pocket PC Edition

Already own a PDA? Rather than shell out for a whole new sat-nav device, you can add GPS capability to a Pocket PC using an external Bluetooth receiver. The CoPilot live Pocket PC Edition comes with a software CD, SD memory card pre-loaded with Australian maps and a Bluetooth GPS receiver.

The CoPilot application installs onto a Windows Mobile 2003 or 5 device simply by popping in the memory card, and setting up the small, pebble-shaped GPS receiver is a straightforward procedure. However, getting a signal lock isn't as speedy as it is on a dedicated sat-nav, with a satellite fix taking anywhere from three to five minutes.

Performance of the mapping software varies with the Pocket PC used. We tested it on a relatively speedy Dopod 838Pro, and while the application ran smoothly, we frequently encountered out-of-memory errors when trying to display points of interest on the map — one of the pitfalls of using a PDA for GPS versus a dedicated unit.

All of the features you'd expect on a mid-range sat-nav are present in the CoPilot software, including different map views, the ability to set multiple stops, and a Points-of-Interest database. The package includes a mounting kit and car charger for the GPS receiver, but unless you're happy to rely on the verbal directions, you'll need to spring extra for a PDA docking cradle.

CONTACT	Audion Australia
ONLINE	www.audion-mm.com
MARKET	Everyone
PRICE	$499.95

✔ Versatile; economical.

VERDICT ★★★½☆

✖ Memory-intensive.

TomTom GO 910

The GO 910 is far from the sleekest sat-nav on the market, but its wedge-shaped construction gives it a lot more character than the standard boxy designs. This extra girth is also easier to forgive once you consider its roomy 20GB hard drive, a fifth of which is prepopulated with Australia-wide maps.

Navigating with the TomTom is nothing short of a pleasure. The menu system is intuitive and easy to navigate — either by touch or using the supplied RF remote control — and the wide-screen 4in LCD does a superb job at displaying the detailed navigation screen. The verbal prompts also provide reassurance aplenty for nervous drivers, including street pronunciations, advance warning of consecutive turns and notification of the correct lane to be in.

The GO 910 also doubles as a Bluetooth hands-free kit and MP3 player, with 16GB available to store music files. These functions aren't as well-implemented as the GPS — speaker quality is tinny, and the internal microphone does a poor job at filtering out ambient noise. The text-to-speech feature can read out incoming SMSs — provided your mobile phone is one of the limited handsets supported by this feature.

Call quality can be improved with the supplied external microphone, but connecting the TomTom to your car speakers requires either an inline stereo connection or purchasing the optional FM transmitter.

CONTACT	TomTom
ONLINE	www.tomtom.com
MARKET	Everyone
PRICE	$1,119

✔ Big hard drive; good interface.

VERDICT ★★★½☆

✖ Large.

Dopod P800W

As a smartphone, the P800W is one of the best in its class, offering all the latest features within a sleek, gun-metal grey chassis. As a GPS solution, however, its value and functionality is questionable. It's one of only a few handsets with a SiRF Star III GPS chip built in, but mapping software isn't included in its already-steep asking price.

Out of the box, the only use for the P800W's GPS receiver is to embed GPS coordinates into photos taken with the two-megapixel camera; the lack of integrated mapping software means you can't use these photos for navigating, so it's more of a gimmick than a useful feature.

In case you decide to drop an extra half a grand on GPS software, as well as a 256MB microSD card to store the maps on, the P800W includes a vehicle mounting bracket and car charger in the box. We tried the PaPaGo Australia 7 application — while it isn't as polished or easy-to-use as other GPS systems, the main navigation screen (particularly in 3D mode) is easy to follow, and the voice prompts are clear and pleasant.

Aside from price, the P800W's main downside is screen size. 2.8 inches in portrait orientation feels claustrophobic for navigation, and while the display can be switched to landscape view, the PaPaGo software itself doesn't support it.

CONTACT	Dopod
ONLINE	www.dopodasia.com/dopod
MARKET	Everyone
PRICE	$1,329 (PDA)

✔ Converged device; pocketable.

VERDICT ★★½☆☆

✖ Maps cost extra; small screen.

Road Angel Navigator 7000

CONTACT Sentinel Geo Systems
ONLINE www.roadangel.com.au
MARKET Everyone
PRICE $899

✔ Emphasis on safe driving.
VERDICT ★★☆☆☆
✖ Unintuitive user interface.

Most sat-navs let you set up alerts for speed cameras, red light cameras and school zones, but the Road Angel Navigator elevates this functionality to an art form. With the 7000, getting to a destination quickly is secondary to getting there safely, making use of the an extensive Road Sense database to provide prominent notifications of any road hazards or speed limits on the main navigation screen.

The Road Sense service isn't free; a three-month trial subscription is included with the package, after which it costs $9.99 a month to receive updates — useful for keeping up to date with variable speed zones and new speed cameras. Built-in Bluetooth is on-board for updating this data via a mobile phone, but, surprisingly, this wireless function isn't extended to allow for hands-free calling.

It's a compact little unit that slips easily into a trouser pocket, but performance lags when using the touch-based menu system. Sluggish processing speed isn't the only thing that slows the Road Angel down — the user interface is also hard to figure out without having the user manual handy.

Using the Road Angel for regular navigation presented no problems; voice-assisted navigation is reasonably loud, and the mapping interface is plain but easy to follow. In sore need of improvement is the 3.5in screen — any sunlight makes it extremely difficult to read.

Mio DigiWalker C510

The DigiWalker C510 doesn't have anything particularly unique or innovative to bring to the sat-nav table, but a solid mix of well-implemented GPS functions make it attractive for those wanting maximum bang for buck.

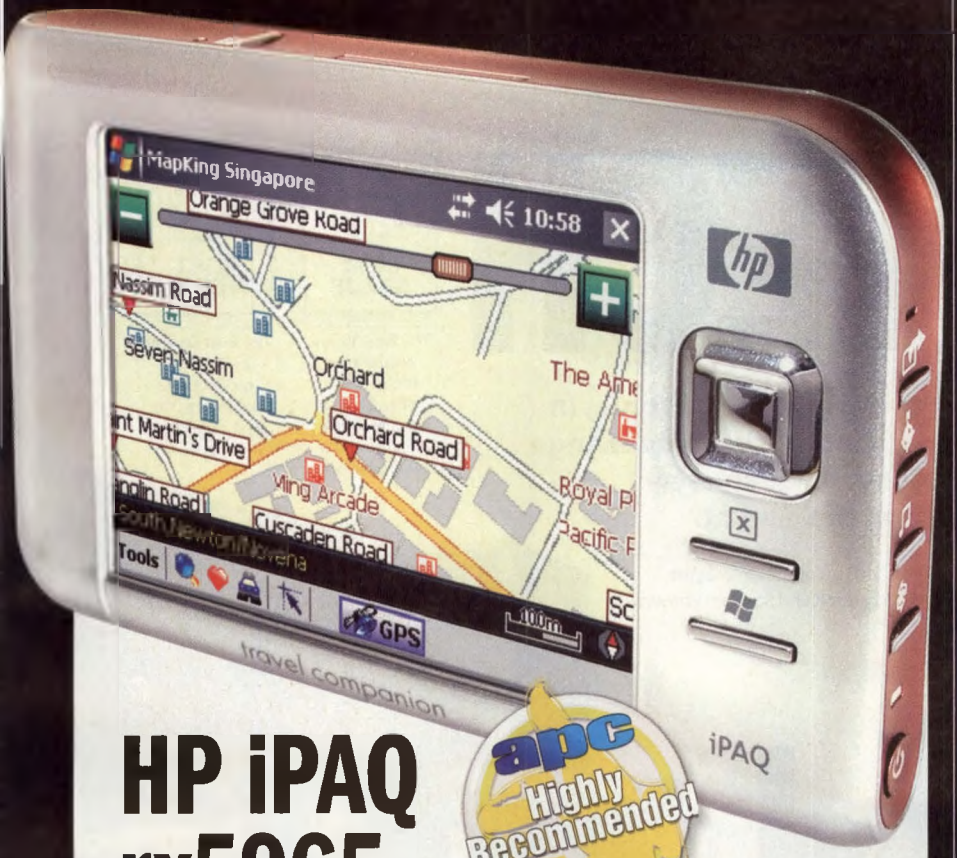
Good sat-nav performance comes down to a speedy processor and sensitive GPS receiver, and the C510 is well-endowed in both areas. The mapping interface features large, crisp text for street names and suburbs, and while extra data like the time to destination and distance aren't as well-labelled from the main navigation screen, the 3D maps are gorgeously rendered and easy to follow.

Standard for a sat-nav in this class is an MP3 player application, but unless you've got a high-capacity SD card (as built-in memory is only 512MB), it's doubtful you'll use the feature much — especially with the C510's average speaker. More commendable for this price range is the Bluetooth hands-free capability, letting you make and receive calls wirelessly through the sat-nav once you pair a compatible mobile phone.

If you've never used a GPS unit before, the logically laid out and attractive menu system of the C510 should make the learning curve a short one. Most features are accessible via large, tap-friendly buttons on-screen, with the exception of four rubber-coated buttons on the right for easy access to power, volume and a shortcut to the home screen.

CONTACT Mio
ONLINE www.mio-tech.com.au
MARKET Everyone
PRICE $799

✔ Solid all-round performance.
VERDICT ★★★½☆
✖ Weak speaker; limited storage.



HP iPAQ rx5965

apc Highly Recommended

If your shopping list includes a new PDA and sat-nav, it makes sense to go with a single, converged device. Traditionally, such combo units have entailed mediocre performance for both functions, but the rx5965 turns this convention on its head, with a stylish grace that's typical of the well-regarded iPAQ brand.

The rx5965 certainly doesn't look like a regular sat-nav, nor does it fit the classic PDA mould. A glossy silver finish with burnt orange accents gives it a look all of its own, and a potent combination of the full-featured Windows Mobile 5 operating system and the excellent TomTom Navigator 6 software makes it one of the most versatile handhelds on the market.

Acquiring an initial satellite fix is slow — anywhere from three to five minutes — but from there on in, performance is exceptional. Destination routing and rerouting is speedy, and the 3.5in screen is vibrant and anti-reflective, with wide viewing angles in case your passenger wants to take on navigation duties.

One sore point is the weak speaker — even at maximum volume, it's too soft to compete with external noise. This lessens the rx5965's appeal as in-car music player, despite the 1.6GB of built-in storage and the SD card slot. Still, with a rich suite of pre-installed GPS, productivity and entertainment software on-board, the rx5965 demonstrates that a powerful converged device is possible — so long as the right ingredients are used.

CONTACT	HP
ONLINE	www.hp.com.au
MARKET	Everyone
PRICE	$799

✔ Pre-loaded TomTom software.

VERDICT ★★★★☆

✖ Weak speaker.

GARMIN

StreetPilot c510

nüvi 660

nüvi models shown include; MP3 player and Bluetooth hands free phone kit. **All models shown include;** 'Text-to-speech' which announces street names, POIs and addresses rather than simple "Turn left, turn right".

nüvi 310

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BEST TECH

BEST VALUE

The **Best Value** award is for those which offer a good combination of features for a reasonable price.

BEST OVERALL

The **Best Overall** award is for products we believe are the best, regardless of price.

***APC*'s independent reviewers point to the best technologies in the top-selling product categories each month. We only change products when a betterone comes along. What you see here is the best technology available on the market.**

Best Tech is edited by William Maher. Contributors to the *APC* Best Tech guide: Seamus Byrne, Ashton Mills, Nick Race, Tony Sarno, Adam Turner, Dan Warne, Chris Zammit and Stephen Withers.

THE BEST GEAR IN 50 CATEGORIES! ONLINE AND IN THE MAGAZINE

DESKTOP PCS – GENERAL USE

Enspire Digital Vitesse XP2

CONTACT Enspire Digital
ONLINE www.enspiredigital.com.au
PRICE $2,687 (our spec)

We specced this machine on the Enspire site, with the right mix of features for work and play. Under the hood is Intel's flagship Core 2 Duo E6600 (2.4GHz) with 1GB of RAM, a Samsung 19in 8ms screen and GeForce 7600GT graphics card. Classy touches include the Logitech MX3000 Cordless Desktop set and 5.1 speakers.

PC Quest M2 Core

CONTACT PC Quest
ONLINE www.pcquest.com.au
PRICE $1,510 (our spec)

When it comes to cheap, do-everything machines, there's a lot of rubbish out there from the big brands. Not so with PC Quest. This system has a dual-core Athlon 64 X2 3800+ on AMD's new AM2 platform, plus 1GB of RAM and a 19in LCD. Also, the ATI Radeon x1600 Pro is a capable card for occasional gaming.

DESKTOP PCS – BUSINESS

Dell OptiPlex 745 mini tower

CONTACT Dell
ONLINE www.dell.com.au
PRICE $1,635.70 (our spec)

With Intel's new Core 2 Duo onboard, this represents the top of the line in a business computing platform. Key features include a Core 2 Duo E6300 (1.8GHz) chip, 1GB DDR2 RAM, a 160GB Serial ATA hard drive, and 3-year next-business-day on-site warranty. Price includes 17in LCD monitor.

UPDATED

Dell Dimension C521

CONTACT Dell
ONLINE www.dell.com.au
PRICE $1,155 (our spec)

As cheap as anything you'll find with dual-core (though you'll get cheaper with P4), we managed to spec the C521 with an Athlon 64 X2 3800+, 1GB RAM, a 19in LCD and 80GB HDD. The weak point is the integrated graphics: Vista-compliant, but you'll need to turn off the eye candy.

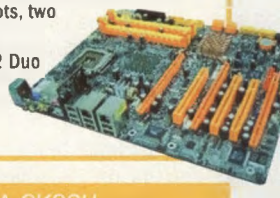
NEW ENTRY

MOTHERBOARDS

EVGA Nvidia 680i motherboard

CONTACT Shadow Entertainment
ONLINE shadowentertainment.com.au
PRICE $450

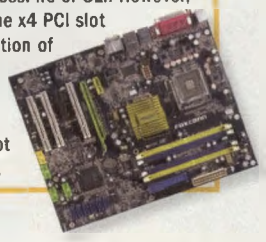
If you're building a high-performance PC based around a Core 2 Duo or Core 2 Quad, this is the motherboard to do it on. Six SATA 2 ports, PAT, two PCI Express x16 slots, two GigE ports, 10 USB 2.0 connections, full Core 2 Duo and Core 2 Quad support with a 1,066MHz FSB.



Foxconn P9657AA-8KS2H

CONTACT Foxconn
ONLINE www.foxconnchannel.com
PRICE $165

This board only has a single x16 PCI Express slot, so it can't be used for CrossFire or SLI. However, it also has one x1 and one x4 PCI slot ready for the next-generation of PCI-E expansion cards. Combine this with HD audio, five SATA and one eSATA port and you've got top value for your money.



VIDEO CARDS

Nvidia GeForce 8800 GTX

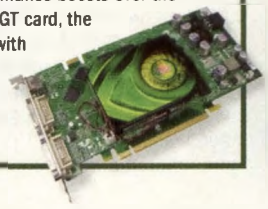
.: CONTACT Nvidia
.: ONLINE www.nvidia.com
.: PRICE Approx. $930

If you're after the most powerful beast on the graphics market, this is it (for the moment). It's hot enough to use as a BBQ, but on the upside it's DirectX 10-ready, so you'll be at the bleeding edge for gaming under Windows Vista. This card cranked out 11,840 in 3DMark06 for *APC*, beating even a CrossFire setup.

Nvidia GeForce 7600 GT

.: CONTACT Nvidia
.: ONLINE www.nvidia.com
.: PRICE Approx. $210

Nvidia's mainstream card, the GeForce 7600 GT raises the bar for price compared to performance. With significant performance boosts over the last-generation 6600 GT card, the 7600 GT also comes with support for SLI, allowing performance to spiral even higher.



LCD MONITORS

Dell 2407WFP

.: CONTACT Dell
.: ONLINE www.dell.com.au
.: PRICE $1,099

If you're a gamer or entertainment lover with cash to drop on a new monitor, look no further. This model not only offers a gorgeous 24in wide-screen monitor but doubles as a low-cost entertainment screen and TV for console gaming in high-def. Its 450cd/m² brightness and 1,000:1 contrast ratio are top-shelf.

BenQ FP71G+

.: CONTACT BenQ
.: ONLINE www.benq.com.au
.: PRICE $329

Proof that good things do come in small packages, this 17in LCD screen manages to remain at a low price point while still delivering an 8ms response time. There is no DVI, but this 1,280 x 1,024 monitor will definitely satisfy most run-of-the-mill computing jobs with ease.

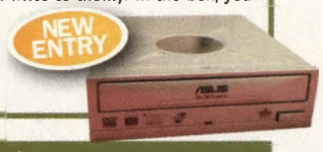
OPTICAL DRIVES – DVD

ASUS DRW-1814BLT DVD writer

.: CONTACT ASUS
.: ONLINE www.asus.com.au
.: PRICE $79

Finally, a retail SATA optical drive! This is a premium drive, running at 18x DVD±RW writing, 8x DVD±R Double Layer and 48x CD writing. Interestingly, it's only rated to read DVDs at 16x (slower than it can write to them). In the box, you get a couple of blank LightScribe-compatible discs, and Nero 6 OEM.

NEW ENTRY



Pioneer DVR-A11XLA

.: CONTACT Pioneer Electronics
.: ONLINE www.pioneeraus.com.au
.: PRICE $99

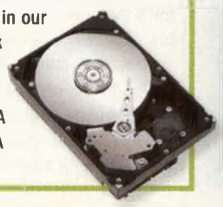
Now into its 11th-generation release, this DVD burner is a steal for only $99. Industry-leading NERO 7 Essentials burning software is included and the drive itself offers a zippy 16x burn speed. The Pioneer drive is an excellent upgrade for an ageing system and a very solid alternative to Sony's model.

INTERNAL HARD DISKS

Seagate Barracuda 7200.10 750GB

.: CONTACT Seagate
.: ONLINE www.seagate.com
.: PRICE Approx. $980

It may not be on the shelves when this issue of *APC* hits the streets, but it won't be too far off. This 750GB whopper scored well in our benchmarks and – just think about it – you only need two of these for 1.5TB of storage! It's available in PATA and SATA, but who uses PATA these days?



Seagate Barracuda 7200.10 320GB

.: CONTACT Synnex
.: ONLINE www.synnex.com.au
.: PRICE $225

It's quiet and packs plenty of punch, but be careful in tight enclosures: it's hot. Though the RRP for this drive is $225, they can be found on the street for less than $200. The 16MB cache model is fast enough for most uses, but if you're serious about video editing, splurge for a 10,000rpm drive.

EXTERNAL HARD DISKS

LaCie Bigger Disk Extreme 2TB

.: CONTACT LaCie
.: ONLINE www.lacie.com/au
.: PRICE $1,695

So your friend has been boasting about their 1TB external like it's the bee's silicon knees? Pfft – LaCie's latest release packs 2TB into a single device, tossing in three different interface options of FireWire 400, FireWire 800 and USB 2.0. As far as external drives go, it doesn't get bigger than this. For now anyway.

Maxtor Basics Personal Storage 3200

.: CONTACT Maxtor
.: ONLINE www.maxtor.com
.: PRICE $249

While the extra "0" on the name of this product was probably a very expensive marketing initiative, the actual size of the external drive is 320GB, which is a good deal for the price. Our previous entrant here was a 250GB drive for a tad near $300, so this is more space for less money.

USB ULTRA-PORTABLE

Lexar Jumpdrive Lightning

.: CONTACT Lexar
.: ONLINE www.lexar.com.au
.: PRICE $79.95 (1GB)

This ultra-quick Lexar functions like any other memory key, but includes a PowerToGo feature – you can install apps to the drive that can be run on any PC. It doesn't make any changes to the host OS and stores files locally on the key, so you can take it all with you when you leave; ideal for students or support staff.

Sandisk Cruzer Micro

.: CONTACT Sandisk
.: ONLINE www.sandisk.com
.: PRICE $47 (1GB)

Sandisk's Cruzer Micro top-notch. The simple design includes a retractable USB connector and ships with a lanyard. The key includes the U3 software platform that allows users to install custom apps – just like Lexar's PowerToGo feature. It's a touch slower than its competitor, but it's also $20 cheaper for the 1GB capacity.

MEDIA ADAPTORS

Zensonic Z500 HD Network DVD

.: CONTACT Zensonic
.: ONLINE www.zensonic.com.au
.: PRICE $569

If you want to get your digital media from the study to the lounge room, the Z500 can handle anything you throw at it. It's a progressive-scan MPEG4/DVD player with HDCP-compatible HDMI, plus built-in Ethernet and 802.11b/g for streaming internet access and playing music, photos and movies from any PC on your home network.

Mediagate MG-350HD

.: CONTACT Anyware Computers
.: ONLINE www.anyware.com.au
.: PRICE $399

The Mediagate MG-350HD is one of the simplest ways to get high-definition action into your lounge room (up to 1,080p resolution). Whack a desktop hard drive inside and the Mediagate plays just about any audio, video or image file you care to throw at it – from the drive or via Ethernet or Wi-Fi.

NAS / MEDIA

Iomega StorCenter 1TB

.: CONTACT Iomega
.: ONLINE www.iomega.com.au
.: PRICE $1,999

The Iomega StorCenter provides a nominal terabyte of storage that can be configured as RAID 0, 1 or 5, plus Gigabit Ethernet, 802.11g wireless (WEP or WPA) and support for UPnP AV media players. Two USB ports enable connection for external drives, a shared printer or a digital camera.

Maxtor Shared Storage Plus

.: CONTACT Maxtor
.: ONLINE www.maxtor.com.au
.: PRICE $399-$699 (200GB-500GB)

Maxtor's Shared Storage Plus provides 200GB to 500GB of network storage, with the ability to stream media files to UPnP AV media adaptors – without the intervention of a PC. USB ports allow for connection of printers and external disk drives for additional storage should you need it.

SERVERS – SMALL BUSINESS

PowerEdge 2900

.: CONTACT Dell
.: ONLINE www.dell.com.au
.: PRICE From $3,487

This Dell is a beauty. It's dual-socket, dual-core and sports up to two of the new Intel Woodcrest Xeons. The default config features a single Xeon 5140 at 2.33GHz with 1,333MHz FSB, backed by 2GB of DDR2 533 FB DIMMS and an 80GB SATA II hard drive. Dell offers a 3-year on-site warranty on this hugely upgradable server.

HP ProLiant ML110 G3 SMB Bundle

.: CONTACT HP
.: ONLINE www.hp.com.au
.: PRICE $1,499

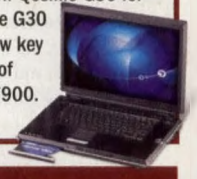
Not a real powerhouse, but the price can't be beaten. This unit is a single CPU Pentium 4 3.0GHz with 1GB of RAM and two 80GB hard disk drives. Though it won't break any speed records, it will suit a small business's needs. The server is bundled with Microsoft Small Business Server 2003 Standard Edition.

NOTEBOOKS – MEDIA CENTRE

Toshiba Qosmio G30

.: CONTACT Toshiba
.: ONLINE www.isd.toshiba.com.au
.: PRICE $5,499

Toshiba and Sony have been battling it out for a while now, and now the Qosmio and Vaio VGN-AR behemoths have been updated. Based on the new specs, we can't go past the new Qosmio G30 for sheer outright luxury. Why? The G30 now has the advantage in a few key areas, including 320GB, 2GB of RAM and Nvidia GeForce Go 7900.



ASUS A7CC

.: CONTACT ASUS
.: ONLINE www.asus.com.au
.: PRICE $2,799

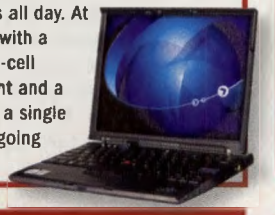
A year ago, finding a decent 17in dual-core notebook under $3,000 wasn't easy. Now you're seeing models like this ASUS, a 17in wide-screen notebook, with Core 2 Duo, 1GB RAM, TV Tuner and 100GB hard drive. It's a jump of more than $1,500 for a 17in Sony or Toshiba; this is good value.

NOTEBOOKS – BUSINESS

Lenovo ThinkPad X60

.: CONTACT Lenovo
.: ONLINE www.lenovo.com/au
.: PRICE From $2,949

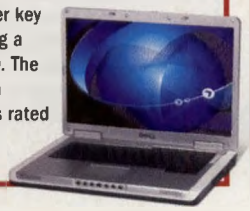
Business is all about portability – after all, there's no point having a notebook if you're hopping between power points all day. At 1.67kg and shipping with a better than average 8-cell battery, the X60's eight and a half hour run-time on a single charge will keep you going all day long.



Dell Inspiron 6400

.: CONTACT Dell
.: ONLINE www.dell.com.au
.: PRICE From $1,329

It's impressive seeing Intel's Core Duo platform in a mid-sized package under $1,500. Dell hasn't skimped heavily on other key features either, including a 15.4in wide-screen LCD. The 6400 will play and burn DVDs, and battery life is rated for three hours. Weight starts at 2.8kg.



NOTEBOOKS – ULTRAPORTABLE

Toshiba Libretto

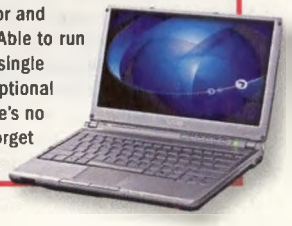
.: CONTACT Toshiba
.: ONLINE www.isd.toshiba.com.au
.: PRICE From $3,499

You had better make sure to look closely when shopping for a notebook or you might miss this one. At just 7.2in, the display is tiny (and the keyboard matches). Don't be fooled by the chassis though, there's plenty of grunt inside (and you can throw it into your backpack with room to spare).

Sony VGNTX27GPT

.: CONTACT Sony
.: ONLINE www.sony.com.au
.: PRICE $3,699

This is the bigger brother of the TX17GP. Here in the *APC* Labs we were blown away by its crisp display, tiny form factor and excellent battery life. Able to run over eight hours on a single charge (and with an optional extended battery, there's no need to worry if you forget to pack your charger).



SMARTPHONES

BlackBerry 8707G

.: CONTACT Optus
.: ONLINE www.optus.com.au
.: PRICE $999 outright (or plans)

This new BlackBerry has the basics perfected. A big, bright screen, fine-tuned QWERTY keyboard, 3G wireless that can also be used as a laptop modem and the BlackBerry email service. Once you get the hang of the keyboard shortcuts, you can whip around the 8707G's interface like lightning.

Nokia E61

.: CONTACT Nokia
.: ONLINE www.nokia.com.au
.: PRICE $749

It's hard to fault Nokia's 3G "BlackBerry Killer": it has the comfortable BlackBerry form factor along with a QWERTY keyboard and fits comfortably in your pocket – plus, you can take your pick of push email service. There are two other killer features: inbuilt Wi-Fi and Nokia's new web browser.

PRINTERS – HOME

Canon PIXMA iP5300 Bubble Jet

.: CONTACT Canon
.: ONLINE www.canon.com.au
.: PRICE $249

This is the perfect all-rounder for the home. It prints high-quality photos and churns through mono text documents at speeds of up to 31ppm, with quality approaching that of a laser. It can also print directly to CDs and DVDs. The iP5300 will deal with school projects, digital photos, documents, anything!

Epson Stylus C79

.: CONTACT Epson
.: ONLINE www.epson.com.au
.: PRICE $89

This is a cheap and cheerful printer that still delivers good results. With its four separate ink cartridges and extra-fine printing, it marries good print and photo quality with print speeds of up to 22ppm (black text) and 12ppm (colour). Be aware that your main ongoing cost will be the ink.

PRINTERS – SMALL BUSINESS

OKI C3400 LED Laser

.: CONTACT OKI
.: ONLINE www.oki.com.au
.: PRICE $878

Essentially a high-performance colour laser for just over $800. The OKI C3400 surpassed all the other sub-$1,000 lasers in our last Labs Challenge in print speed and quality because it uses slightly different LED laser technology. Consumable costs are slightly higher because the toner cartridges only do 1,000 pages, but it's a top performer.

Lexmark E120n

.: CONTACT Lexmark
.: ONLINE www.lexmark.com.au
.: PRICE $188

The outstanding value of this package sent the *APC* office into raptures. The E120n is a 20ppm mono laser printer, with an Ethernet print server built in, for only $188. Connect it to your ADSL modem/router and you can print wirelessly from anywhere in the house. Cartridges are not expensive either.

MULTIFUNCTION – HOME

Canon Pixma MP830

.: CONTACT Canon
.: ONLINE www.canon.com.au
.: PRICE $549

The MP780's successor, the MP830 soundly beats the competition. It can print photo-lab-quality 4 x 6in home snaps and has all the gear needed by a home office, such as a copier, scanner and G3 fax machine (together with an automatic 35-page document feeder and duplexing ability).

Lexmark X5470

.: CONTACT Lexmark
.: ONLINE www.lexmark.com.au
.: PRICE $249

This Lexmark is probably the first attempt to create an multifunction printer that actually looks stylish. On top of that, the machine also performs well, with print speeds up to 25ppm black and 18ppm colour, a 10-sheet automatic document feeder, plus PC-free photo, fax and copy capabilities.

MULTIFUNCTION – BUSINESS

EPSON Aculaser CX11NF

.: CONTACT Epson
.: ONLINE www.epson.com.au
.: PRICE $1,499

This colour laser multifunction printer won three of the six tests thrown at several MFPs in *APC*'s Labs Challenge. Has good copy and scan speed, and does a great job with plain paper, where its fine detail and accurate colour impressed the judges. It can really replace your office printer, copier and fax machine.

Brother MFC-8860DN

.: CONTACT Brother
.: ONLINE www.brother.com.au
.: PRICE $1,199

A mono (rather than colour) laser, this still has all the components to make it a powerful office or small department performer – such as a 28ppm network laser printer, a copier and a scanner with built-in duplexing, as well as LDAP capability (for accessing directory services). A great all-rounder for the price.

ADSL2+ MODEM/ROUTERS

Dynalink RTA1025W

.: CONTACT Dynalink
.: ONLINE www.dynalink.com.au
.: PRICE $179

This modem is a bargain at $179. It performed well in our ADSL2+ and wireless tests and was also a strong performer in Annex M tests. The only area for improvement is long-range wireless, where the 1025W only managed 800Kbit/s, but this won't be a significant concern for most people.

Dynalink RTA1046VW

.: CONTACT Dynalink
.: ONLINE www.dynalink.com.au
.: PRICE $279

Performance is nearly as good as the 1025W, but for your extra $100 you get two inbuilt VoIP ports for you to connect standard phones to and make two calls at the same time. And if you want the fastest possible modem at 1KM, this is it: 19.85Mbit/s.

WIRELESS APs & ROUTERS

Linksys Wireless-N WRT300N

.: CONTACT Linksys
.: ONLINE www.linksys.com.au
.: PRICE $279.95

We're still not overly convinced that Draft N devices are the best devices in the long term, but if you want more speed for now, at least it gives you a chance of compatibility between brands and some hope of a firmware upgrade further down the track. The WRT300N has the best range among the Draft N routers we've tested so far.

TP-Link TL-WR541G

.: CONTACT Anyware
.: ONLINE www.anyware.com.au
.: PRICE $75

In our tests the TL-WR541G delivered solid connections at the same range as routers costing much more. It has the usual four-port 10/100 Ethernet switch plus regular features such as a (relatively simple) firewall, access controls, WPA2 authentication, DHCP and port triggering.

VOIP ADAPTORS

Netcomm V300

.: CONTACT NetComm
.: ONLINE www.netcomm.com.au
.: PRICE $199

Low upstream speeds on most broadband connections mean QoS support makes a big difference to how you sound during a VoIP call. In *APC*'s testing, the V300 delivered good voice quality with minimum impact on data traffic. It also lets you use one handset for VoIP and PSTN calls.

Netcomm V100

.: CONTACT NetComm
.: ONLINE www.netcomm.com.au
.: PRICE $128

Connect the V100 to a power point, your network and a handset, and you're in business. Available as a generic model or preconfigured for certain VoIP providers, which makes it as simple as it gets. Some people prefer a box that allows more diddling around with configurations, but we're attracted to the simplicity.

GPS DEVICES

Garmin Nuvi 660

.: CONTACT GME
.: ONLINE www.gme.net.au
.: PRICE $1,199

As a sat-nav, the Nuvi 660 is the cream of the crop. Stellar 4.3in wide-screen, large buttons and a user-friendly interface make it a breeze to use, and the main navigation screen is clear and uncluttered. Acquiring a GPS signal is speedy thanks to the flip-up antenna, and correcting wrong turns is also snappy.

NEW ENTRY

Navman N40i

.: CONTACT Navman Australia
.: ONLINE www.navman.com
.: PRICE $899

The N Series takes up the NavPix "image-based navigation" theme and delivers it in an even smaller package. Compared to the N60i it has a smaller colour touchscreen and less flash memory. But, with an RRP of $899, it has to be one of the best value GPS in-car units on the market today.

DIGITAL STILL CAMERAS

Canon IXUS 800IS

.: CONTACT Canon
.: ONLINE www.canon.com.au
.: PRICE $649

The IS in this IXUS is for image stabilisation, but the rest of this package is really hard to beat too, with a great range of shooting modes and image settings. The Canon 6MP CCD delivers superb imaging quality. A 4x optical zoom is excellent at this price.

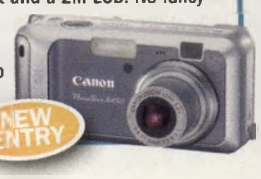
NEW ENTRY

Canon PowerShot A450

.: CONTACT Canon
.: ONLINE www.canon.com.au
.: PRICE $199

This camera delivers all the power of Canon's DIG!C II image processor at a seriously good price. 5MP, 3.2x optical zoom, movie mode, one-touch download/print and a 2in LCD. No fancy shooting modes, but that makes it even better for anyone who just wants to point and click.

NEW ENTRY



DIGITAL VIDEO CAMERAS

Panasonic AG-HVX202EN

.: CONTACT Panasonic
.: ONLINE www.panasonic.com.au
.: PRICE $9,900

The first of the next-generation pro-grade cameras (and inside $10K). Record in DV or various DVCPRO formats, with support for 720p and 1080i HD. With support for DV tape and the new P2 flash media format, as well as pro audio features and new lensing technology, this is nova hot right now.

Hitachi Hybrid DZ-HS301

.: CONTACT Hitachi
.: ONLINE http://aus.hitachi.com.au/
.: PRICE $1,449

This is a DVD/HDD combo cam. Hitachi's new hybrid gives you more control over video quality and greater recording times, with up to three hours at DVD quality and six at "standard". You also get in-camera editing before you output to disc, making it perfect for those fearful of editing on a PC.

PROJECTORS

Optoma HD72

.: CONTACT Amber Technology
.: ONLINE www.ambertech.com.au
.: PRICE $4,750

Optoma's outstanding DLP-based projector offers full 720p HD resolution for less than $5,000. The 3.1kg unit produces a clear, consistent image with controls to adjust brightness, contrast, image shift and keystone, through dedicated buttons on the remote control. This helps the viewer adjust the image to match each movie.

Dell 1800MP

.: CONTACT Dell
.: ONLINE www.dell.com.au
.: PRICE $1,398.10

Meet the Dell 1800MP, a DLP machine with XGA resolution and brightness of 2,100 lumens. Its 1,024 x 768 resolution and contrast ratio of 2,000:1 are generally found on higher-priced projectors. Downside? Slightly louder fan (36Db) and butt-ugly design, but who cares when it comes at this price?

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TV TUNERS

Compro VideoMate T750

CONTACT Anyware
ONLINE www.anyware.com.au
PRICE $149

With pockets of poor digital reception, we're still inclined towards combo analogue/digital tuners. The T750 provides digital and analogue, composite/S-Video capture, FM radio tuner (with MP3, WAV and WMA recording), remote control and Compro's capable software. We especially like its ability to power up and shut down by remote or before/after recording.

Compro VideoMate U500

CONTACT Anyware
ONLINE www.anyware.com.au
PRICE $99

The Compro VideoMate U500 is a USB dongle, so you can use it with desktops or notebooks (but you may need a better antenna than the one included in order to receive all channels). Scheduled recording is easy enough to set up, plus it's possible to record directly to a DVD or an ISO.

PERSONAL VIDEO RECORDERS

Topfield TF6000PVRt

CONTACT Topfield
ONLINE www.topfield.com.au
PRICE $1,249

The addition of Wi-Fi provides wireless downloads of electronic program guides from IceTV, allowing you to record TV shows by name rather than timeslot. This Topfield has dual digital tuners and a 200GB hard drive (was 160GB). It's also now easier to copy files off the unit for playback on your PC.

Foxtel iQ

CONTACT Foxtel
ONLINE www.foxtel.com.au
PRICE $14.95/mth

Admittedly, the 160GB Foxtel iQ sits awkwardly in the category of PVRs, because it's inextricably tied to Foxtel's Pay TV service. But if you do happen to be a Foxtel subscriber, the 160GB IQ is absolutely worth the money. Foxtel has removed the upfront fee, so it's now just $14.95 a month.

PORTABLE MUSIC PLAYERS

iPod 80GB

CONTACT Apple
ONLINE www.apple.com.au
PRICE $499

Now this is getting really mental. Truly an insane amount of storage (20,000 songs), which is enough to knock Creative's Zen Vision: off the top of our list. The screen is now brighter and gives up to 20 hours of battery life. It's not cheap, but yet again, Apple's iPod is the best.

iPod shuffle 1GB

CONTACT Apple
ONLINE www.apple.com.au
PRICE $119

We're not turning into iPod fanboys, but for RRP value we still can't go past the shuffle, which has had a design overhaul and a price cut. It's now so small that fashion models must use their fingertips to hold it in press photos. 1GB of memory gives you up to 240 songs.

HD TVs

Sony Bravia KDL40X2000

CONTACT Sony
ONLINE www.sony.com.au
PRICE $5,499

The Bravia is set apart from the competition by its signature styling, featuring a "floating glass" design – this screen looks expensive, and it is. This is full HD resolution of 1,920 x 1,080, unlike some cheaper value screens (see Acer's value range). For the price, you're also getting an integrated HD digital tuner and 2 HDMI inputs.

Acer AT3705-DTV

CONTACT Acer
ONLINE www.acer.com.au
PRICE $2,899

Sure, this high-definition television isn't a traditional audio-visual brand, but Acer are definitely good value for money. For less than $3,000 you're getting a 37in full high-definition resolution (1,920 x 1,080) LCD screen including analogue and digital TV tuners.

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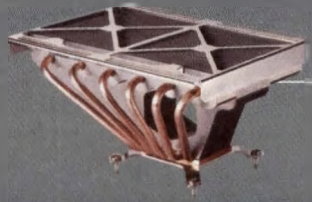

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Visit www.tpg.com.au/shdsl or call 1300 659 412 for more details

TPG

Optus' billion-dollar wireless broadband network

Optus has announced plans to take on Telstra Next G with a new HSDPA network that will cover at least 96 per cent of the population with 3.6Mbit/s download speeds, writes *Dan Warne*.

Optus' move will introduce a new level of competition in provision of broadband via mobile networks, not only because Telstra will now have a competitor, but because Optus is also planning to wholesale the service to other providers.

"[Telstra] thought that it could lock up regional Australia under a 3G monopoly. But Optus continues to build its business on bringing competition and improved products and services to customers," said Optus CEO Paul O'Sullivan.

The new network will be built and owned by Optus exclusively, but it will continue to co-own the existing 2,100MHz 3G network in metro Australia with Vodafone.

Optus' HSDPA network will operate in the 2,100MHz frequency range, but Optus says it is exploring the possibility of using the 900MHz frequency range — similar to Next G's 850MHz range — to provide long-reach coverage in small regional centres and rural/remote locations.

The cost of the network rollout is estimated at up to $800 million if it is built entirely at 2,100MHz, and around $500 million if 900MHz proves feasible.

Optus has also asked the government for a further $200 million to expand coverage from 96% to 98%.

"Because remote Australia is so lightly populated, you need to cover half a million square kilometres to reach a further two percent of the population," the company said.

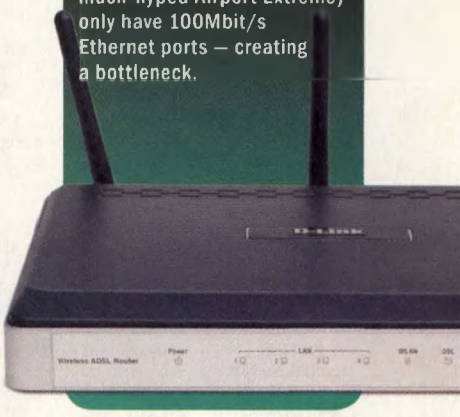
"[Telstra] has received over $350 million dollars of public money to expand its network in rural and regional Australia in the last ten years, of which $120 million has been used for its mobile network," Paul Fletcher, Optus Director of Corporate and Regulatory Affairs, said.

"To date, most Government funding has reinforced the incumbent's rural monopoly. The Government can now square the ledger by funding the expansion of a competitive network into areas where it would not be commercially viable to build," Mr Fletcher said.

in brief

GIGABIT N ROUTER

If you yearn for maximum in-home networking performance, D-Link's new router might be just the ticket. It includes draft 802.11n for high-speed wireless, as well as gigabit Ethernet ports. Many of the draft 802.11n routers released (including Apple's much-hyped Airport Extreme) only have 100Mbit/s Ethernet ports — creating a bottleneck.



NOKIA + ENGIN VOIP PHONE

VoIP provider Engin has struck a deal with Nokia to provide VoIP on the Nokia N80 handset. Ilkka Tales, CEO of Engin, says it'll appeal to travellers, who can go to any hotspot in the world and make an untimed call to Australia for 10 cents. Tales conveniently skipped over the cost of access to the hotspot, however. It might be of more practical use to people who have Wi-Fi at home and like the idea of a Wi-Fi VoIP phone – but don't want to cough up hundreds of dollars for one.

your monthly broadband guide

APC is proud to partner with the independent broadband price-monitoring service Broadband Choice (***broadbandchoice.com.au***) to bring you the best ADSL and cable deals.

The comparison table on the following pages focuses on internet service providers that best serve the majority of *APC* readers' needs – those that have national coverage (though we have included some ISPs that provide higher than 2Mbit/s speed services in limited areas).

Only those meeting at least three of our four plan selection criteria are listed:

Budget plan: cheapest deal under $35/month.

Light plan: cheapest deal under $60/month, with at least 512Kbit/s speed and 1GB data.

Family plan: largest download allowance under $80/month, at least 512Kbit/s and 10GB data.

High-speed: cheapest 1.5Mbit/s plan under $100/month, with 10GB data minimum.

If an ISP has "unlimited downloads" but speed is throttled after reaching a certain limit, the portion in which you can get full-speed downloads is listed as its limit.

APC has picked the lowest price for a contract period of six months or less for broadband installation. Otherwise, the lowest-priced option was selected.

The installation price doesn't include a modem because you may find you'll get better value by buying one separately.

Can't find your provider in our list? That's because some of the largest ISPs, and many smaller ones, didn't meet the selection criteria. There may be ISPs we didn't list that will provide better deals (but which only service your local area or state).

ISPs enter their own information into the Broadband Choice database. ISPs can contact bc@whirlpool.net.au for more details on how to become part of the database.

Data for our table was extracted from the Broadband Choice database on 20 February 2007.

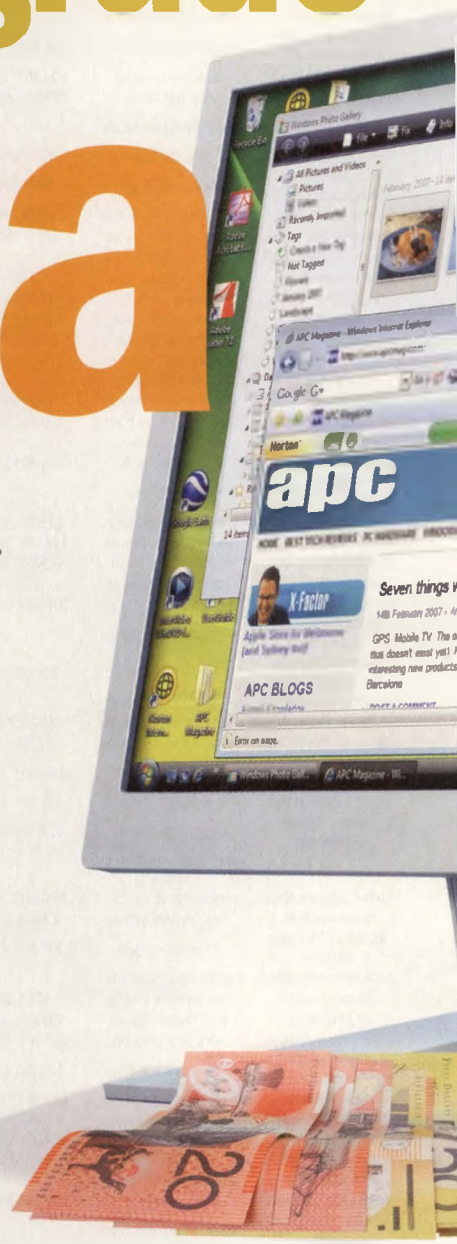
Name	Online	Budget plan (under $35)	Light plan (under $60, at least 512Kb/s, minimum 1GB data limit)	Family plan (under $80, at least 512Kb/s, minimum 10GB data limit)	High-speed plan (under $100, at least 1.5Mb/s, minimum 10GB data limit)	National	Spam filtering	Setup fee and contract length	Rapid transfer
Superfast broadband ISPs (faster than 1.5Mb/s)									
Dodo ADSL2+	www.dodo.com.au	$29.90†* 1GB+^ 24Mb/s	$29.90†* 1GB+^ 24Mb/s	$59.90†* 20GB+^ 24Mb/s	$49.90†* 10GB+^ 24Mb/s	✔	$1.95	$99 12mths	✘
HostCoreDSL ADSL2	www.hostcoredsl.com.au	$29.95† 1GB 24Mb/s	$29.95† 1GB 24Mb/s	$69.95† 50GB 24Mb/s	$49.95† 10GB 24Mb/s	✘	✔	$149.95 1mth	✘
HostCoreDSL ADSL2 Un-bundled	www.hostcoredsl.com.au	$29.95 1GB 24Mb/s	$29.95 1GB 24Mb/s	$49.95 10GB 24Mb/s	$49.95 10GB 24Mb/s	✘	✔	$109.95 6mths	✘
iiNet broadband2+ ADSL (24Mbit)	www.iinet.net.au	$29.95† 500MB+ 24Mb/s	$39.95 1GB 3Mb/s	$69.95† 20GB+ 24Mb/s	$59.95† 10GB+ 24Mb/s	✘	✔	$79.95 6mths	✘
Internode Extreme ADSL2+	www.internode.on.net	N/A	$59.95 20GB 24Mb/s	$79.95 40GB 24Mb/s	$59.95 20GB 24Mb/s	✘	✔	$129 6mths	✘
Koala ADSL 2+	www.koalatelecom.com.au	$34.95† 500MB 24Mb/s	$44.95† 5GB 24Mb/s	$74.95† 50GB 24Mb/s	$49.95† 10GB 24Mb/s	✔	✔	$149.95 6mths	✘
Letsgo Go ADSL2+ 24Mbit	www.letsgo.com.au	N/A	$39.95† 60GB 24Mb/s	$39.95† 60GB 24Mb/s	$39.95† 60GB 24Mb/s	✘	✔	$50 12mths	✘
Matilda Internet aDSL2+	www.matilda.net.au	N/A	$54.95†* 1GB 24Mb/s	$79.95† 20GB+ 24Mb/s	$69.95† 10GB+ 24Mb/s	✔	✔	$180 1mth	✘
OptusNet Cable	http://broadbandsales.optusnet.com.au	$29.95† 300MB+ 9.765625Mb/s	$39.95† 2GB+ 9.765625Mb/s	$69.95† 20GB+ 9.765625Mb/s	$69.95† 20GB+ 9.765625Mb/s	✘	✔	$89 12mths	✘
OptusNet DSL Direct	http://broadbandsales.optusnet.com.au	$29.95† 300MB+ 24Mb/s	$39.95† 2GB+ 24Mb/s	$69.95† 20GB+ 24Mb/s	$69.95† 20GB+ 24Mb/s	✘	✔	$89 12mths	✘
Primus up to 8000Kbps	www.primus.com.au	$29.95† 1GB 8Mb/s	$29.95† 1GB 8Mb/s	$69.95† 20GB 8Mb/s	$59.95† 10GB 8Mb/s	✘	✔	$118 1mth	✔
Spin ADSL2+	www.spin.net.au	$29.95†* 1GB+ 24Mb/s	$29.95†* 1GB+ 24Mb/s	$69.95† 40GB 24Mb/s	$59.95† 20GB 24Mb/s	✘	✔	$100 12mths	✘
Telstra BigPond Cable	www.bigpond.com	$29.95* 200MB^ 7.8125Mb/s	$59.95† 10GB^ 7.8125Mb/s	$59.95† 10GB^ 7.8125Mb/s	$59.95† 10GB^ 7.8125Mb/s	✘	$2.50	$189 12mths#	✘
TPG Residential ADSL2+	www.tpg.com.au	$29.99* 600MB 24Mb/s	$39.99 3GB 24Mb/s	$59.99 30GB 24Mb/s	$49.99 18GB 24Mb/s	✘	✔	$59.95 12mths	✘
Regular broadband ISPs (1.5Mb/s or less)									
.Netcall ADSL	www.netcall.com.au	$24* 500MB 256 Kb/s	$30* 1GB 512 Kb/s	$50* 24GB 512 Kb/s	$69* 18GB 1.5Mb/s	✔	✘	$130 6mths	✔
.Netcall ADSL	www.netcall.com.au	$29* 2GB 256 Kb/s	$29* 1GB 512 Kb/s	$50* 24GB 512 Kb/s	$70* 18GB 1.5Mb/s	✔	✘	$110 12mths	✔
1 2 3 ADSL	www.123.net.au	$29.99†* 200MB 256 Kb/s	$49.99†* 1.5GB 512 Kb/s	$69.99† No limit 512 Kb/s	N/A	✔	✔	$129 6mths	✔
aaNet ADSL	www.aanet.net.au	$27.90* 1GB+ 256 Kb/s	$33.90* 1GB+ 512 Kb/s	$74.90* 36GB+ 512 Kb/s	$54.90* 14GB+ 1.5Mb/s	✔	✔	$145 6mths	✔
aaNet ADSL	www.aanet.net.au	$24.90* 1GB+ 256 Kb/s	$29.90* 1GB+ 512 Kb/s	$79.90* 48GB+ 1.5Mb/s	$49.90* 14GB+ 1.5Mb/s	✔	✔	$145 12mths	✔
AAPT ADSL	www.aapt.com.au	$29† 500MB 256 Kb/s	$39† 12GB 512 Kb/s	$49† 15GB 1.5Mb/s	$49† 15GB 1.5Mb/s	✔	✔	$0 1mth	✔
Accsoft Freeway ADSL	www.onmyweb.net	N/A	$52.95 1.5GB 512 Kb/s	$75.95 15GB 512 Kb/s	$98.95 10GB 1.5Mb/s	✔	✔	$132 6mths	✔
Aspark ADSL	www.aspark.com.au	N/A	$53.95† 25GB 512 Kb/s	$53.95† 25GB 512 Kb/s	$99.95† 35GB 1.5Mb/s	✔	✔	$110 1mth	✔
AuNix Broadband	www.aunix.com.au	$24.95* 200MB 256 Kb/s	$39.95† 25GB 512 Kb/s	$74.95† 35GB 1.5Mb/s	$74.95† 35GB 1.5Mb/s	✔	✔	$89 6mths	✔
Auritel Broadband	www.auritel.com.au	N/A	$59.95 25GB 512 Kb/s	$59.95 25GB 512 Kb/s	$89.95 35GB 1.5Mb/s	✔	✘	$129 6mths	✔
Aussiewide Residential ADSL	www.aussiewide.com	N/A	$59.95 30GB 512 Kb/s	$59.95 30GB 512 Kb/s	$99 30GB 1.5Mb/s	✔	✔	$110 6mths	✔
Australia On Line ADSL	www.australiaonline.net.au	$16.95* 200MB 256 Kb/s	$39.95 2GB 512 Kb/s	$54.95 No limit 512 Kb/s	$94.95 No limit 1.5Mb/s	✔	✔	$99 6mths	✔
Australis Internet ADSL	www.australis.net	$24.95* 200MB 256 Kb/s	$49.95 5GB 512 Kb/s	$64.95 30GB 512 Kb/s	$79.95 10GB 1.5Mb/s	✔	✔	$169 1mth	✔
B Digital ADSL	www.mysoul.com.au	$34.95† 5GB 256 Kb/s	$44.95† 5GB 512 Kb/s	$64.95† 10GB 1.5Mb/s	$64.95† 10GB 1.5Mb/s	✔	✔	$119 6mths	✔
BIT.net	www.bit.net.au	$19.95† 2GB 256 Kb/s	$29.95† 2GB 512 Kb/s	$69.95† 40GB 512 Kb/s	$59.95† 10GB 1.5Mb/s	✔	✔	$132 6mths	✔
BKB Internet Home ADSL	www.bkb.net.au	N/A	$49.95 1GB^ 512 Kb/s	$64.95 10GB^ 512 Kb/s	$89.95 10GB^ 1.5Mb/s	✔	✔	$139 6mths	✔
Blackstump ADSL	www.blackstump.net.au	$19.95†* 200MB 256 Kb/s	$44.95† 5GB 512 Kb/s	$55.95† No limit 512 Kb/s	$72.45†* 10GB 1.5Mb/s	✔	✔	$108 6mths	✔
Bluemaxx ADSL	www.bluemaxx.net.au	$24.95* 200MB 256 Kb/s	$54.95 5GB 512 Kb/s	$74.95 30GB 512 Kb/s	$84.95 10GB 1.5Mb/s	✔	✔	$105 12mths	✔
BBI Flat Rate DSL	www.brownbear.net.au	$32.95 2GB 256 Kb/s	$39.95 2GB 512 Kb/s	$74.95 60GB 512 Kb/s	$64.95 15GB 1.5Mb/s	✔	✔	$119 6mths	✔
BBI Excess DSL	www.brownbear.net.au	$32.95* 2GB 256 Kb/s	$39.95* 2GB 512 Kb/s	$74.95* 60GB 512 Kb/s	$64.95* 15GB 1.5Mb/s	✔	✔	$119 6mths	✔
Brown Bear DSL/Phone	www.brownbear.net.au	$19.95†* 1GB 256 Kb/s	$29.95†* 1GB 512 Kb/s	$69.95† 60GB 512 Kb/s	$59.95† 15GB 1.5Mb/s	✔	✔	$119 6mths	✔
Bullet ADSL	www.bullet.net.au	$34.95* 500MB 256 Kb/s	$49.95* 5GB 512 Kb/s	$69.95* 25GB 512 Kb/s	N/A	✔	✔	$150 12mths	✔
Central Coast Internet ADSL	www.cci.net.au	$34.95* 500MB 256 Kb/s	$54.95* 1GB 512 Kb/s	$64.95* 10GB 512 Kb/s	N/A	✔	✔	$132 6mths	✔
Comcen Internet	www.comcen.com.au	$19.99* 200MB 256 Kb/s	$39.99* 1GB+ 512 Kb/s	$79.99 No limit 512 Kb/s	$69.99* 15GB+ 1.5Mb/s	✔	✔	$99 6mths	✔
Comstech Systems ADSL	www.comstech.com.au	$32.95 500MB 256 Kb/s	$44.95 3GB 512 Kb/s	$69.95 50GB 512 Kb/s	$74.95 25GB 1.5Mb/s	✔	✔	$129.95 6mths	✔
Concept Networks ADSL	www.conceptual.net.au	$29.95* 500MB 256 Kb/s	$39.95* 1GB 512 Kb/s	$69.95 No limit 512 Kb/s	$79.95* 15GB 1.5Mb/s	✔	✔	$99 6mths	✔
Connexus Home ADSL	www.connexus.net.au	$27.95* 200MB^ 256 Kb/s	$59.95 10GB^ 512 Kb/s	$59.95 10GB^ 512 Kb/s	N/A	✔	✔	$149 6mths	✔
CyberOne ADSL	www.cyberone.com.au	$19.95†* 200MB 256 Kb/s	$39.95†* 1GB 512 Kb/s	$64.95† No limit 512 Kb/s	$74.95† 15GB+ 1.5Mb/s	✔	✔	$99 1mth	✔
Cyberspace Internet ADSL	www.cyberspace.net.au	$21.95†* 200MB 256 Kb/s	$46.95†* 5GB 512 Kb/s	$57.95† No limit 512 Kb/s	$79.95†* 10GB 1.5Mb/s	✔	✔	$99 6mths	✔
DCSI	www.dcsi.net.au	$29.95 500MB 256 Kb/s	$49.95 10GB 512 Kb/s	$59.95 20GB 512 Kb/s	$79.95 20GB 1.5Mb/s	✔	✔	$125 6mths	✔
Diamond Telecom ADSL	www.diamondtelecom.com.au	N/A	$49.95† 25GB 512 Kb/s	$49.95† 25GB 512 Kb/s	$84.95† 35GB 1.5Mb/s	✔	✘	$69 6mths	✔
DigiPlus	www.digiplus.com.au	$29.95† 10GB 256 Kb/s	$42.95† 5GB 512 Kb/s	$49.95† 10GB 512 Kb/s	$89.95† 10GB 1.5Mb/s	✔	✘	$99 1mth	✔
Dodo ADSL	www.dodo.com.au	$29.90†* 1GB+^ 256 Kb/s	$39.90†* 1GB+^ 1.5Mb/s	$79.90†* 20GB+^ 8Mb/s	$59.90†* 15GB+^ 1.5Mb/s	✔	$1.90	$99 6mths	✔
DragNet Budget ADSL	www.dragnet.com.au	$26.95* 200MB^ 256 Kb/s	N/A	$69.95 10GB^ 512 Kb/s	$95.95 10GB^ 1.5Mb/s	✔	✔	$100 6mths	✔
DragNet Power ADSL	www.dragnet.com.au	N/A	$54.95* 1.5GB 512 Kb/s	$74.95 15GB 512 Kb/s	$95.95 10GB 1.5Mb/s	✔	✔	$100 6mths	✔
Ecomtel ADSL	www.ecomtel.com.au	$24.90†* 300MB 256 Kb/s	$54.90† No limit 512 Kb/s	$54.90† No limit 512 Kb/s	$69.90† No limit 1.5Mb/s	✔	✔	$120 1mth	✔
EFTel ADSL	http://w3.eftel.com	$19.95†* 500MB 256 Kb/s	$39.95†* 2GB 512 Kb/s	$59.95†* 25GB+ 512 Kb/s	$69.95†* 25GB+ 1.5Mb/s	✔	✔	$125 12mths	✔
eTelecom ADSL	www.etelecom.com.au	$19.95†* 200MB 256 Kb/s	$39.95†* 1GB 512 Kb/s	$69.95†* 15GB 1.5Mb/s	$69.95†* 15GB 1.5Mb/s	✔	✔	$99 12mths	✔
Fonebox ADSL Broadband Internet	www.fonebox.com.au	$29.90* 200MB 256 Kb/s	$49.90 5GB 512 Kb/s	$79.90 30GB 512 Kb/s	$79.90 10GB 1.5Mb/s	✔	✔	$99 6mths	✔
FutureWeb ADSL	www.futureweb.com.au	$31.95* 200MB 256 Kb/s	$49.95 1.5GB 512 Kb/s	$73.95 15GB 512 Kb/s	N/A	✔	✔	$99 6mths	✔
Green Tree Frog ADSL	www.greentreefrog.net.au	N/A	$55 40GB 512 Kb/s	$77 100GB 512 Kb/s	$99 80GB 1.5Mb/s	✔	✔	$132 6mths	✔
Green Tree Frog Business ADSL	www.greentreefrog.net.au	N/A	$55* 40GB 512 Kb/s	$77* 100GB 512 Kb/s	$99* 80GB 1.5Mb/s	✔	✔	$132 6mths	✔

Regular broadband ISPs (1.5Mb/s or less)

Name	Online	Budget plan (under $35)	Light plan (under $60, at least 512Kb/s, minimum 1GB data limit)	Family plan (under $80, at least 512Kb/s, minimum 10GB data limit)	High-speed plan (under $100, at least 1.5Mb/s, minimum 10GB data limit)	National	Spam filtering	Setup fee and contract length	Rapid transfer
Hande Communications ADSL - Shaped	www.hande.net.au	$32.95 500MB^ 256 Kb/s	$44.95 1.5GB^ 512 Kb/s	$79.95 30GB^ 512 Kb/s	$84.95 10GB^ 1.5Mb/s	✔	✔	$119.95 1mth	✔
Hande Communications ADSL - Usage Based	www.hande.net.au	$32.95* 500MB^ 256 Kb/s	$44.95* 1.5GB^ 512 Kb/s	$69.95* 15GB^ 512 Kb/s	$89.95* 15GB^ 1.5Mb/s	✔	✔	$119.95 1mth	✔
HostCoreDSL ADSL1	www.hostcoredsl.com.au	$34.95 500MB 256 Kb/s	$49.95 10GB 512 Kb/s	$79.95 500GB 512 Kb/s	$69.95 10GB 1.5Mb/s	✔	✔	$109.95 6mths	✔
HugoNet Home ADSL Broadband	www.hugonet.com.au	$29.95* 250MB+ 256 Kb/s	$49.95* 1GB+ 512 Kb/s	$69.95 25GB+ 512 Kb/s	$79.95 20GB+ 1.5Mb/s	✔	✔	$99 12mths	✔
IF Com ADSL	www.ifcom.com.au	$24.95†* 200MB 256 Kb/s	$49.95† 25GB 512 Kb/s	$49.95† 25GB 512 Kb/s	$84.95† 35GB 1.5Mb/s	✔	✔	$99 12mths	✔
iiNet broadband1 ADSL	www.iinet.net.au	$29.95† 500MB+ 256 Kb/s	$49.95 2GB 512 Kb/s	$69.95 10GB 512 Kb/s	$99.95 15GB 1.5Mb/s	✔	✔	$79.95 6mths	✔
Infinity Plus Residential DSL	www.infinityplus.net.au	N/A	$54.95† 25GB 512 Kb/s	$54.95† 25GB 512 Kb/s	$84.95† 30GB 1.5Mb/s	✔	✔	$100 6mths	✔
ISP ADSL	www.isp.net.au	$29.70* 1GB 256 Kb/s	$42.90* 5GB 512 Kb/s	$77 No limit 512 Kb/s	$69.30* 25GB 1.5Mb/s	✔	✔	$120 6mths	✔
Instant Communications ADSL	www.in.com.au	$30* 200MB 256 Kb/s	$52 5GB 512 Kb/s	$73* 20GB 512 Kb/s	$87* 10GB 1.5Mb/s	✔	✔	$99 6mths	✔
IntegrityNet ADSL	www.integritynet.com.au	$29.95* 200MB 256 Kb/s	$59.95* 5GB 512 Kb/s	$69.95* 10GB 512 Kb/s	$99.95* 10GB 1.5Mb/s	✔	✔	$139 12mths	✔
Internode Home ADSL	www.internode.on.net	$29.95 500MB 256 Kb/s	$39.95 8GB 512 Kb/s	$69.95 40GB 512 Kb/s	$49.95 10GB 1.5Mb/s	✔	✔	$129 6mths	✔
Internode SOHO ADSL	www.internode.on.net	N/A	$59.95 10GB 512 Kb/s	$69.95 20GB 512 Kb/s	$69.95 10GB 1.5Mb/s	✔	✔	$129 6mths	✔
Interwerks ADSL	www.interwerks.net.au	$34.95* 1GB 256 Kb/s	$49.95* 5GB 512 Kb/s	$79.95 No limit 512 Kb/s	$99.95* 25GB 1.5Mb/s	✔	✔	$119 3mths	✔
ISage Internet ADSL	www.isage.aunz.net	$24.95* 200MB 256 Kb/s	$44.95 25GB 512 Kb/s	$79.95 35GB 1.5Mb/s	$76.95† 15GB 8Mb/s	✔	✔	$89 6mths	✔
ispace ADSL	www.ispace.net.au	$29.95* 200MB 256 Kb/s	$49.95 5GB 512 Kb/s	$79.95 60GB 512 Kb/s	$79.95 15GB 1.5Mb/s	✔	✔	$120 6mths	✔
ITEL ADSL	www.itel.net	$34.95†* 4GB 256 Kb/s	$49.95†* 4GB 512 Kb/s	$54.95† No limit 512 Kb/s	$69.95* 10GB 1.5Mb/s	✔	✔	$129 12mths	✔
ADSL Broadband	www.itginternet.net.au	$31.79* 200MB 256 Kb/s	$54.89 5GB 512 Kb/s	$65.89 30GB 512 Kb/s	$76.89 15GB 1.5Mb/s	✔	✔	$95 6mths	✔
JaziNET ADSL	www.jazi.net	N/A	$46.50 25GB 512 Kb/s	$46.50 25GB 512 Kb/s	$88 35GB 1.5Mb/s	✔	✔	$110 1mth	✔
Jump Internet ADSL	http://jumpnet.com.au	$30* 200MB 256 Kb/s	$50* 2GB 512 Kb/s	$80 30GB 512 Kb/s	$80 15GB 1.5Mb/s	✔	✘	$0 12mths	✔
Koala ADSL	www.koalatelecom.com.au	$29.95† 500MB 256 Kb/s	$39.95† 3GB 512 Kb/s	$79.95† No limit 512 Kb/s	$49.95† 10GB 1.5Mb/s	✔	✔	$129.95 6mths	✔
Lets Go ADSL	www.letsgo.com.au	N/A	$59.95 30GB 512 Kb/s	$59.95 30GB 512 Kb/s	$99.95 30GB 1.5Mb/s	✔	✔	$99 6mths	✔
Lizzy ADSL	www.lizzy.com.au	$16.95* 200MB 256 Kb/s	$39.95 2GB 512 Kb/s	$54.95 No limit 512 Kb/s	$94.95 No limit 1.5Mb/s	✔	✔	$99 6mths	✔
Lucidity Communications ADSL	www.lucidity.net.au	N/A	$59.95† 25GB 512 Kb/s	$79.95† 35GB 1.5Mb/s	$79.95† 35GB 1.5Mb/s	✔	✔	$120 1mth	✔
Matilda Internet DSL	www.matilda.net.au	$29.95* 200MB 256 Kb/s	$49.95* 1GB 512 Kb/s	$59.95 10GB+ 512 Kb/s	$89.95 10GB+ 1.5Mb/s	✔	✔	$110 1mth	✔
Midcoast Internet DSL	www.midcoast.com.au	$28.50* 200MB^ 256 Kb/s	N/A	$71.50* 10GB^ 512 Kb/s	$98* 10GB^ 1.5Mb/s	✔	✔	$99 6mths	✔
Netspace Home ADSL	www.netspace.net.au	$29.95* 300MB 256 Kb/s	$29.95† 1GB+ 512 Kb/s	$69.95† 20GB+ 1.5Mb/s	$54.95† 10GB+ 1.5Mb/s	✔	✔	$99 6mths	✔
Netspace SOHO ADSL	www.netspace.net.au	N/A	$49.95† 15GB 512 Kb/s	$79.95† 20GB 1.5Mb/s	$64.95† 10GB 1.5Mb/s	✔	✔	$99 6mths	✔
NetSpeed ADSL	www.netspeed.com.au	$19.95†* 200MB 256 Kb/s	$34†* 1GB+ 512 Kb/s	$74† 30GB+ 512 Kb/s	$74†* 10GB+ 1.5Mb/s	✔	$2	$139 12mths	✔
North Queensland Telecom ADSL	www.nqtelecom.com.au	N/A	$49.95 25GB 512 Kb/s	$79.95 35GB 1.5Mb/s	$79.95 35GB 1.5Mb/s	✔	✔	$90 1mth	✔
Optimum Internet ADSL	www.opti.net.au	$31.95† 15GB 256 Kb/s	$39.95† 25GB 512 Kb/s	$69.95† 35GB 1.5Mb/s	$69.95† 35GB 1.5Mb/s	✔	✔	$98 1mth	✔
Optraweb ADSL	www.optraweb.com.au	N/A	$44.95 5GB 512 Kb/s	$74.95 60GB 512 Kb/s	$81.95 15GB 1.5Mb/s	✔	✔	$129 6mths	✔
Optraweb Excess DSL	www.optraweb.com.au	$32.95* 2GB 256 Kb/s	$39.95* 2GB 512 Kb/s	$74.95* 60GB 512 Kb/s	$81.95* 15GB 1.5Mb/s	✔	✔	$129 6mths	✔
Optraweb Bundle DSL	www.optraweb.com.au	$27.95† 2GB 256 Kb/s	$34.95† 2GB 512 Kb/s	$69.95† 60GB 512 Kb/s	$80.95† 15GB 1.5Mb/s	✔	✔	$129 6mths	✔
OzForces Residential ADSL	www.ozforces.com	$24.95* 200MB 256 Kb/s	N/A	$68.95 25GB 512 Kb/s	$89.95 35GB 1.5Mb/s	✔	✔	$119 6mths	✔
Pacific Internet DSL	www.pacific.net.au	$29.95* 250MB 256 Kb/s	$39.95 1GB 512 Kb/s	$54.95 No limit 512 Kb/s	$49.95† 10GB 1.5Mb/s	✔	✔	$99 6mths	✔
Primus Flexible Broadband	www.primus.com.au	$24.95† 500MB 256 Kb/s	$34.95† 1GB 512 Kb/s	$69.95† 20GB 1.5Mb/s	$59.95† 12GB 1.5Mb/s	✔	✔	$118 1mth	✔
Quantum ADSL	www.quantumtelecom.com.au	N/A	$49.95† 25GB 512 Kb/s	$79.95† 35GB 1.5Mb/s	$79.95† 35GB 1.5Mb/s	✔	✔	$140 1mth	✔
Rabbit Internet ADSL	http://rabbit.com.au	$27.95†* 200MB 256 Kb/s	$34.90†* 1GB 512 Kb/s	$80†* 60GB 1.5Mb/s	$59†* 10GB 1.5Mb/s	✔	✔	$99 6mths	✔
Rapid Net ADSL	www.rapidnet.com.au	$34.95 500MB 256 Kb/s	$44.95 5GB 512 Kb/s	$49.95 15GB 512 Kb/s	$79.95 12GB 1.5Mb/s	✔	✔	$109 6mths	✔
REEDS.NET Internet Services	www.reeds.net.au	$29.95* 300MB 256 Kb/s	$49 25GB 512 Kb/s	$49 25GB 512 Kb/s	$87 35GB 1.5Mb/s	✔	✔	$125 6mths	✔
Saco Technology ADSL	www.sacotech.com.au	N/A	$45.95† 2GB 512 Kb/s	$75.95† 60GB 512 Kb/s	$74.95† 15GB 1.5Mb/s	✔	✔	$129.95 6mths	✔
Simpliciti ADSL	www.simpliciti.com.au	$31 500MB 256 Kb/s	$47 5GB 512 Kb/s	$57 30GB 512 Kb/s	$87 10GB 1.5Mb/s	✔	✔	$99 3mths	✔
SkyWays ADSL	www.skyways.net.au	$29.95† 200MB 256 Kb/s	$49.95† No limit 512 Kb/s	$49.95† No limit 512 Kb/s	$99.95† 100GB 1.5Mb/s	✔	✔	$109 6mths	✔
Snowynet ADSL	www.snowy.net.au	$29.90* 200MB+ 256 Kb/s	N/A	$69.90 No limit 512 Kb/s	$99.90 No limit 1.5Mb/s	✔	✔	$110 6mths	✔
Southern Corss Telco ADSL	www.sctelco.com.au	$29.95† 400MB 256 Kb/s	$39.95† 2GB 512 Kb/s	$79.95† 30GB 1.5Mb/s	$79.95† 30GB 1.5Mb/s	✔	✔	$99 6mths	✔
Spin Internet	www.spin.net.au	$19.95†* 300MB 256 Kb/s	$29.95†* 2GB+ 512 Kb/s	$59.95† No limit 512 Kb/s	$49.95† 15GB 1.5Mb/s	✔	✔	$99 6mths	✔
Supernerd SuperDSL	www.supernerd.com.au	$24.95* 500MB 256 Kb/s	$44.95* 10GB 512 Kb/s	$59.95 No limit 512 Kb/s	$89.95* 30GB 1.5Mb/s	✔	✔	$110 6mths	✔
TalkTODAY ADSL	www.talktoday.com.au	$29.95† 500MB^ 256 Kb/s	$41.95† 5GB^ 512 Kb/s	$64.95† 100GB^ 512 Kb/s	$69.95† 30GB^ 1.5Mb/s	✔	✔	$119 6mths	✔
TeeGee Internet ADSL	www.teegee.com.au	$24.95† 15GB 256 Kb/s	$34.95† 25GB 512 Kb/s	$69.95† No limit 512 Kb/s	$64.95† 35GB 1.5Mb/s	✔	✔	$99 1mth	✔
telaustralia SME & Res	www.telaustralia.com.au	N/A	$49.95 25GB 512 Kb/s	$79.95 35GB 1.5Mb/s	$79.95 35GB 1.5Mb/s	✔	✘	$120 6mths	✔
Telstra BigPond ADSL	www.bigpond.com	$29.95* 200MB^ 256 Kb/s	N/A	$69.95† 12GB^ 1.5Mb/s	$69.95† 12GB^ 1.5Mb/s	✔	$2.50	$99 12mths	✔
Fat Free Broadband ADSL	www.fatfreefones.com	N/A	$49 25GB 512 Kb/s	$49 25GB 512 Kb/s	$89 35GB 1.5Mb/s	✔	✔	$110 1mth	✔
TrumpNet ADSL	www.trump.net.au	$29.95* 200MB 256 Kb/s	N/A	$75.95 No limit 512 Kb/s	$99.95 No limit 1.5Mb/s	✔	✔	$135 12mths	✔
TSN Broadband	www.tsninternet.com.au	$29.95 5GB 256 Kb/s	$39.95 10GB 512 Kb/s	$69.95 50GB 1.5Mb/s	$49.95 20GB 1.5Mb/s	✔	✔	$129 6mths	✔
Web Ace ADSL	www.webace.com.au	$19.95†* 200MB 256 Kb/s	$39.95† 2GB 512 Kb/s	$69.95 60GB 512 Kb/s	$84.95 15GB 1.5Mb/s	✔	✔	$119 6mths	✔
Web-Hermits ADSL	www.web-hermits.com	$34.95 2GB 256 Kb/s	$41.95 2GB 512 Kb/s	$49.95 20GB 512 Kb/s	$81.95 20GB 1.5Mb/s	✔	✘	$109 6mths	✔
Westnet Home ADSL	http://westnet.com.au	$29.95† 500MB 256 Kb/s	$34.95† 1GB 512 Kb/s	$54.95† 10GB+ 512 Kb/s	$69.95† 10GB+ 1.5Mb/s	✔	$0.83	$99 6mths	✔
Wild DSL 2007 Plans	www.wildit.net.au	$29.95† 20GB 256 Kb/s	$39.95† 30GB 512 Kb/s	$59.95† 75GB 512 Kb/s	$59.95* 12GB 1.5Mb/s	✔	✔	$98 1mth	✔
Winshop ADSL	www.winshop.com.au	$29.95 500MB 256 Kb/s	$39.95 3GB 512 Kb/s	$59.95 15GB 1.5Mb/s	$59.95 15GB 1.5Mb/s	✔	✔	$139 12mths	✔
Yaussie Net ADSL	www.yaussie.com.au	$29.95† 20GB 256 Kb/s	$39.95* 9GB 512 Kb/s	$59.95† 75GB 512 Kb/s	$59.95* 12GB 1.5Mb/s	✔	✔	$98 1mth	✔
yourhub ADSL	www.yourhub.com.au	N/A	$55 1.5GB 512 Kb/s	$80 15GB 512 Kb/s	$95 10GB 1.5Mb/s	✔	$1	$110 12mths	✔
ZCTS ADSL	www.zcts.net	N/A	$46.50 25GB 512 Kb/s	$46.50 25GB 512 Kb/s	$88 35GB 1.5Mb/s	✔	✔	$110 1mth	✔

*Key: * ISP charges excess usage fees when you exceed your download limit; † This price only available if bundled with long distance telephony from the ISP; + Additional download allowance available with this plan for use in off-peak periods; ^ ISP combines sent and received data when calculating usage. # Minimum BigPond Cable setup fee is based on 12-month contract with modem included. Telstra does not offer a BYO modem option.*

Build or upgrade to Vista



Do you need a new PC to run Windows Vista, or should you just change a few components in your existing one? *James Morris* investigates.

Now that Windows Vista is here, you're probably wondering if your existing PC will be up to the job. You may not think you need Vista, but once you've tried it there's a good chance you'll want it. And with that desire could come a whole slew of indirect costs; old components that worked well under XP no longer make the grade. XP felt rather like a new skin on the basic Windows 9x theme, but Vista is much more radical. The pretty 3D-powered interface is just the tip of the iceberg; there's a new driver model, and much more stringent control over what software can be run. So this month we present you with everything you need to decide if your system, with a few upgrades, will be fine for Vista — or if an entirely new PC is required.

VISTA UPGRADE COMPATIBILITY

Before taking the plunge and buying your copy of Windows Vista, you'll want to know if your existing PC is actually up to the task. Microsoft has made this easier by creating a utility that will check your system to see if it contains anything that definitely won't work. You can download it at **http://snipurl.com/18oha**. This should be your first port of call, although we've found it doesn't always run on every PC.

The Upgrade Advisor will tell you if four key components are sufficient for Windows Vista — CPU, system memory, your optical driver and your video card. For a basic Windows Vista system, Microsoft recommends an 800MHz processor, 512MB of RAM and a 20GB hard disk with 15GB free. Most PCs of the last five years could fit the bill, and if they have too little RAM this should be a fairly cheap upgrade. However, you will need a DVD-ROM drive to install Vista, because it only comes on DVD. A DVD rewriter is also recommended for some of the Premium functionality, such as its built-in authoring. But this is not a requirement to install or run the core operating system, and one of these won't set you back much more than $50 these days anyway.

The most likely peripheral for the Windows Vista Upgrade Advisor to highlight as problematic is your graphics card. It's now fairly common knowledge that Windows Vista is the first Microsoft operating system to require hardware 3D acceleration for full functionality. This is needed to power the new Aero interface. You can run Vista without this, and indeed the entry-level Home Basic edition doesn't actually ship with Aero at all. But that would mean missing out on one of the pleasures of Vista, so we'll assume for this feature that you want to use either the Home Premium, the range-topping Ultimate edition, or one of the corporate alternatives.

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REVIEWS: APC BEST TECH
You know the drill: your cousin wan
know what the best value hardware
We've done the hard work for you.
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Build or upgrade to Vista

Windows Vista
Upgrade Advisor
Welcome to Windows Vista Upgrade Advisor
Windows Vista Upgrade Advisor will scan your computer to help you choose which edition of Windows Vista is right for you. It will also provide guidance about many of the advanced Windows Vista features your computer supports and compatibility of your existing software and devices with Windows Vista.
Note: Before you start the scan, plug in any devices that you regularly use with your compute as printers, scanners, or external hard drives.
Start Scan

You can download the Windows Vista Upgrade Advisor from Microsoft's web site to check your existing PC's compatibility with the new operating system.

A notebook with integrated graphics and 256MB of RAM will run XP, but it won't have what it takes for Vista.

> IT'S LIKELY THAT PCs WITH INTEGRATED GRAPHICS WILL NEED TO UPGRADE FOR AERO

Although Windows Vista is inextricably linked with DirectX 10, the Aero interface is actually only written in a special extended version of DirectX 9 called DirectX 9Ex. So, in theory, any DirectX 9-compatible graphics card should be able to run the slightly updated version of the API. However, it also needs hardware support for Pixel Shader 2, and the appropriate Windows Vista drivers. Most discrete graphics cards produced in the last four years should be up to the job, because everything from ATI since the Radeon 9700 (and from Nvidia since the GeForce FX 5600) meets the criteria — and drivers are supplied with the OS DVD.

But, integrated chipsets are a different story. If you're not a gamer and have been doing just fine running Windows XP on a PC with integrated graphics, then this is the most likely area of upgrade required for Vista. Only Intel's latest GMA 950 chipset is compatible with the Aero interface, which will leave many corporate PCs and laptops to languish in two dimensions.

None of SiS's integrated graphics support Aero, although its Chrome series does, and only VIA's K8M890 and K8N890 are compatible. While ATI's Radeon Xpress 200 and later do work with Aero, the only Nvidia integrated chipset that's compatible is the most recent GeForce 6100 and 6150. If you're worried whether your graphics will really run Aero, then it's worth checking the list at **www.msbetas.org/?page=vistareadygpus** before taking the plunge.

LEGACY DEVICES AND WINDOWS VISTA

We've already hinted that Windows Vista is capable of much more strict code control than XP, and a lot of this is because of its new Windows Driver Foundation. Drivers are now split into two portions — User and Kernel. Some drivers will suffice with User Mode code, where they used to have portions in the kernel as well. The beauty of this is that User Mode drivers can fall over, or be shut down, without bringing the entire system with them. Only Kernel Mode drivers affect the core system, and there will be much more stringent management of what gets to run in the kernel.

There's a special subset of the Windows Driver Foundation for graphics cards called the Windows Display Driver Model (WDDM). Graphics card WDDM drivers will have a small kernel portion, but the Direct3D and video acceleration portions are both user mode, so if games, video playback or even the Aero interface crash, they shouldn't take your whole OS with them. The WDDM driver also allows the memory paging required by the Desktop Window Manager which controls Aero.

The downside of the new Windows Driver Foundation is that your hardware will need new drivers for Windows Vista; the old WDM ones for Windows XP probably won't work. Microsoft has built in around 20,000 drivers, but there are still plenty that aren't on the Vista DVD. For example, we found the audio on one of our test PC's Nforce 250 Professional chipset wasn't included. Fortunately, many third-party drivers have been developed, including one for the audio on Nforce 250. One we know isn't, however, is Creative's SoundBlaster Live! 5.1, although the 24-bit Live! cards are supported. Some devices won't be installed automatically, but you can force Vista to use the old Windows XP drivers, albeit often with reduced features.

We've also noticed some curious behaviour with one optical drive. We found that the two-year-old LG GSA-4160B drive in one of our test machines refused to read the Windows Vista DVD, despite being updated to the latest firmware, yet an older Plextor PX-708A had no problems. The Vista DVD uses the ISO-13346 UDF file system specification, rather than the older ISO-9660, so the drive must support the newer specification to install Vista. Strangely, we found the LG drive read our Windows Vista disc just fine once Vista was fully installed. So, this was clearly a Windows XP-related problem.

REQUIREMENTS FOR HIGH-DEFINITION VIDEO

The ability to run Aero isn't the only reason you might want new graphics for Windows Vista. Another graphics-related issue probably won't be so obvious when you first upgrade. Unless you're an early Blu-ray or HD-DVD adopter, you won't have yet considered using your PC to play HD content.

But whereas playing DVDs on your PC simply meant owning a DVD drive and a PC fast enough to decode MPEG-2 in real time, HD optical formats are being launched into a world where content owners are much more savvy — and paranoid — about their content.

NEW DRIVERS REQUIRED

Windows Vista runs most of the graphics driver outside the kernel for greater stability.

Driver model under Windows XP.

Driver model under Windows Vista.

A whole new technology has been developed to keep Blu-ray and HD-DVD content from being copied, the overall name for which is the Advanced Access Content System (AACS). Windows Vista has support built in, but you'll also need to have compatible hardware. Aside from your HD optical drive supporting AACS, your graphics card will need to be compatible as well. For graphics, the key feature is HDCP, which is a system for encrypting the digital video signal as it passes from the graphics card to the display.

Although graphics processors from both ATI and Nvidia have been HDCP-compliant since around 2003, they needed an extra chip built in to fully support the standard. ATI has since built this into its X1000 series chips, but it still needs to be enabled by the manufacturer, so only a handful of models are compatible. Both Nvidia's 7950 and 8000 series have HDCP built in as a requirement of the reference design, plus a few select models from other ranges. There's a list of some available at **http://snipurl.com/1an0v**. If you want to play HD content, your graphics card will also need to support the appropriate resolution, which will entail at least 128MB of video RAM for 1080i or 1080p content.

HDCP is still a rather thorny subject, particularly with PCs. Any HDTV sporting the HD Ready logo allegedly supports HDCP, particularly as it's supposed to be an integral part of the HDMI connection system now taking over from DVI in the consumer electronics market. But there's no guarantee that a DVI connection is HDCP-compliant. Even if your graphics card does support HDCP on its DVI ports, there's also no guarantee that your monitor will, because most displays produced before 2006 don't. More and more recent models have now added HDCP compatibility, including a number of Dell-branded panels, plus a few from Samsung, Sony and Viewsonic. So, if watching HD is likely to be something you want to do with your Vista PC, a new monitor will probably be a requirement, alongside a new HDCP-capable graphics card, as part of your Vista upgrade portfolio.

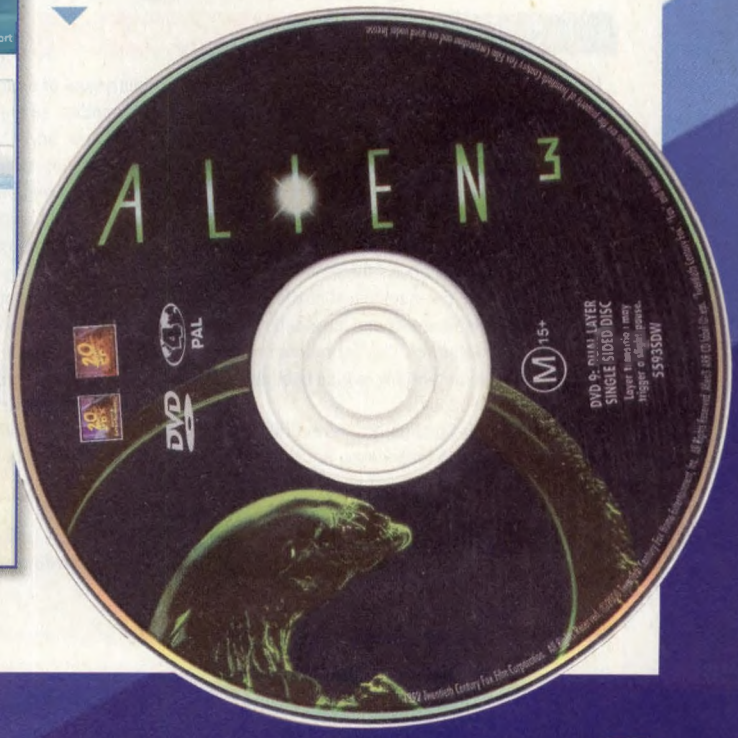
However, there's still a lot of confusion about what will happen if your monitor or another part of your PC doesn't support HDCP. The Vista content protection system is capable of scaling back the quality to non-HD levels for protected content, but it's not a requirement — just an option. So, content providers may not be so draconian. With so little HD content out there, and so few drives and displays, nobody yet knows for sure.

SECURITY ISSUES

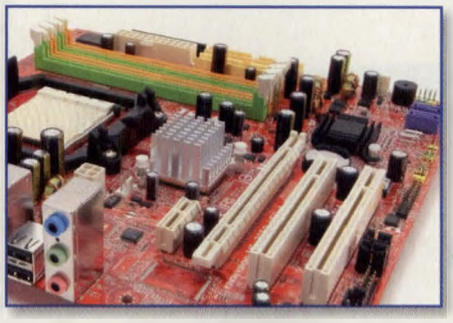
Vista's new Code Integrity system can prevent some of your software from running under Windows Vista. This checks what binaries you're running and, if any code attempts

If your PC passes the Windows Vista Upgrade Advisor's tests, there's a good chance the new operating system will install and run smoothly.

If you want to play Blu-ray or HD-DVD videos on your PC, your graphics card and monitor must support HDCP.



Dell's 24in E2407WFP TFT is capable of HD resolutions and supports HDCP — perfect for playing HD video content.



New Intel Robson technology will use motherboard-integrated flash memory to enhance hard disk performance under Vista.

FACT FILE

The Home Premium and Ultimate versions of Vista include the ability to capture from HDV camcorders and have DVD authoring built in, but can't burn to HD optical formats without third-party software.

to access the kernel or a protected process, or tries to engage in core cryptographic functions, it will be stopped.

We've already seen this at work. The Kingston DataTraveler Elite Privacy USB memory key that we tried couldn't load its encryption utility, causing a fault and preventing us from accessing its contents. But other memory keys we've tried had no problems loading their drivers.

Windows Vista has some security measures for business users, but here again you'll need the appropriate hardware. The BitLocker drive encryption system is only available in the Enterprise and Ultimate versions of Vista, and it requires either a Trusted Platform Module (TPM) and BIOS support, or a USB key plus BIOS support for reading USB devices. With BitLocker turned on, the entire primary hard disk including all OS components is encrypted. So, without the hardware key, the drive cannot be read nor the system booted, and there is no back door for law enforcement either.

Building your own systems

Although a 1GHz PC with 512MB RAM and DirectX 9 graphics may be sufficient to run Windows Vista, if your PC is really old, the new operating system could be your cue for a more major upgrade than a few extra peripherals. So, for the rest of this feature, we'll suggest three whole PCs for three different budgets, which will provide the performance and features to take full advantage of Windows Vista. For these build-your-own specifications, we've only specified the components that will affect Windows Vista itself. We have therefore not included the keyboard, mouse or speakers in our configurations, because these currently have no effect on your Windows Vista experience.

THE $1,150 PC

Although Vista does have some stricter requirements than Windows XP, for a basic system capable of running the Aero interface,

> IF YOUR PC IS REALLY OLD, THE NEW OS COULD BE YOUR CUE FOR A MORE MAJOR UPGRADE

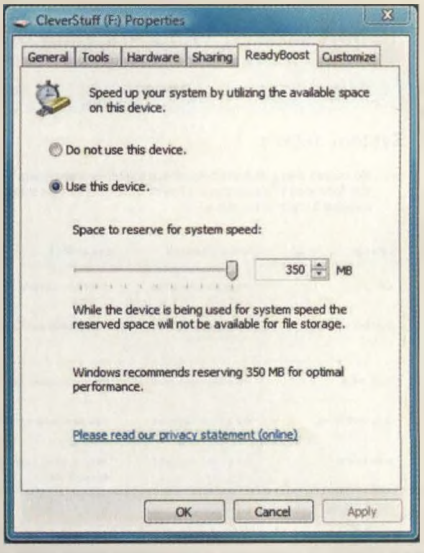
READY FOR READYBOOST?

New Vista technologies use flash memory to enhance performance and reduce power consumption.

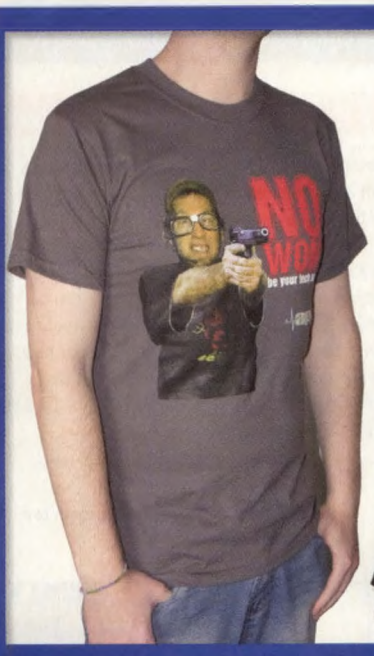
One of the most curious new features of Windows Vista is its innovative use of flash memory. ReadyDrive adds support for Hybrid Hard Disks (HHDs), which have a small cache of flash memory built in. This allows them to withhold writing to disk, so the mechanical portion of the drive can spin down and spend more time in its idle state to save power. The fast random access of flash can also potentially reduce boot and application load times.

Intel is backing a slightly different take on the idea with its Robson technology. Robson puts the flash memory on the motherboard rather than the hard disk itself, so you can use any drive. To take advantage of ReadyDrive, you'll either need an HHD or a Robson-enabled Intel motherboard. The HDD boards are currently in short supply, and the Robson ones haven't shipped yet. The primary goal of both is to reduce power consumption, so these are aimed at laptops.

However, any PC can use the ReadyBoost technology. Inserting a USB memory stick into your Vista system will prompt Windows to give you the option to use the key for ReadyBoost. This turns a portion of the USB drive into a cache for small read/write tasks. Larger sequential file operations still go straight to your hard disk, and all cached data is shadowed there in case the drive is accidentally removed. Your USB drive must have fast enough random read performance over a USB 2.0 interface, but if it fits the criterion, you should feel increased responsiveness when running multiple applications.



Any USB 2.0 drive with fast enough random access speed can be used to give Vista a ReadyBoost.



Go to *APC* Geek Gear for the inside story on running an e-commerce site.

It's here! *APC*'s own geek shop stocks everything from T-shirts, USB cup warmers, MP3 players and other gear that's completely geek. What's more, we'll let you be a fly-on-the-wall by showing you the inside info on how we did it. It's everything you ever wanted to know about setting up an online shop.

www.geekgear.com.au

Now there's no excuse for unsafe computing

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Whenever you use mains power you risk surges, blackouts, damage to your hardware and data. The Powerware POD provides long life high level surge protection for your valuable IT and AV equipment. The sleek high quality POD provides six plug-packed spaced power outlets and even has protection for your network, phone and aerial cables. It has all the cables you need for complete protection, so why take the risk?

All professional installations use a UPS. Well now you can afford one for your computer as well. The new Powerware 3105 gives you three outlets of battery backup and three more outlets of surge suppression. This small, unobtrusive black unit even has protection for your telephone line, fax, printer or scanner. The LanSafe software performs unattended shutdowns whilst keeping you informed of power problems and low battery conditions. This inexpensive unit has all the cables and software you need for complete protection.

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LOW-COST VISTA

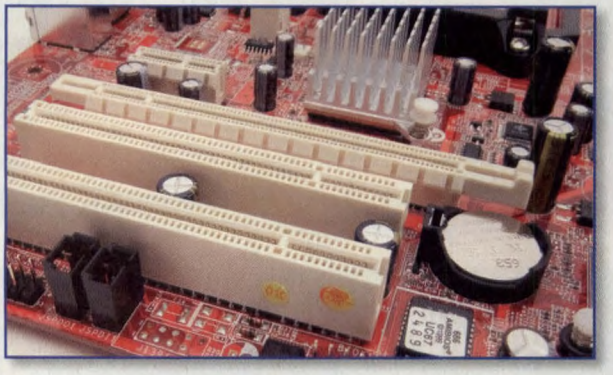
We've seen OEM copies of Windows Vista Home Premium for sale online for less than $200 – but you get what you pay for.

For our self-built PC examples, we've left the price of Windows Vista out of the equation, because this varies greatly depending on which version of the operating system you want to purchase. At the time of writing, the retail version of Home Premium was $455, and $299 for an upgrade, whereas the Ultimate Edition was a gob-smacking $751, with the upgrade price an astronomical $495. But if you're prepared to buy a component or two, you could purchase an OEM edition.

The OEM versions are a lot cheaper, but be careful not to be taken in by the price difference, for it hides a significantly more restrictive licence agreement. This will have a notable impact on whether you'll be able to perform major component upgrades on your PC – particularly the main hard disk and motherboard. As with OEM versions of Windows XP, you may be allowed to activate the OEM versions of Vista one more time over the phone after such a major upgrade, but two strikes and you will definitely be out.

In contrast, the full retail versions of Vista will allegedly allow you up to 10 activations without a quibble, although only one installation can be used at a time. So if you plan to migrate your copy of Windows to a new machine on a regular basis, the cheaper OEM deals could well be a false economy; you may end up having to buy Windows all over again for your new PC.

The MicroATX format suffers with fewer expansion slots.



The use of fans on graphics cards contributes to noisier systems.

Cases that house PSUs at the bottom can lead to cable-length issues.

the differences are not that great. So even if you have only around $1000 to $1500 to spend on a new Windows Vista platform, you should still be able to put a machine together that will be more than capable of sprightly Vista performance for a few years to come. Despite the low price, you'll be able to afford a dual-core processor and reasonable graphics acceleration to boot.

To keep the costs down, at this price, about the best-value CPU available is AMD's Athlon 64 X2 3800+. At the time of writing, you could still get the Socket 939 version, but the Socket AM2 equivalent was actually cheaper and leaves the option of future upgrades open. It may be possible to find the 3800+ for cheaper than an Intel Core 2 Duo. There are cheaper Pentium Ds still on the market, but you would be locking yourself into an obsolete architecture here, too. The LGA775 socket might offer Core 2 Duo as a future upgrade, but even AMD's cheapest Athlon 64 X2 outclasses the Pentium D in most benchmarks, and AMD does have some new CPU cores on its roadmap for Socket AM2 in 2007.

To house our Athlon 64 X2, we opted for a budget motherboard in the shape of MSI's K9AGM-F. This Socket AM2 board uses the ATI Radeon 1150 chipset, but because it's a MicroATX format, it only sports four expansion slots: PCI Express 16x for graphics, PCI Express 1x for other devices, and a pair of PCI slots. Still, it's a bargain.

We've specified a powerful discrete graphics card with 256MB memory. Nvidia's GeForce 7600GT is currently the best value graphics card for under $300, even with 256MB of memory. We've specified the cheapest we could find, from Palit (**www.palit.com.tw**), but there are other versions with full HDCP support as well, from the likes of MSI, such as the latter's NX7600GTVT2D256E-HD.

We've also specified 2GB of RAM, partly because we've discovered that some games that were perfectly happy under Windows XP have trouble with Windows Vista. In particular, the extremely popular Quake 4 has stability problems with just 1GB, and other titles can stutter. Again, if you don't play games, you could economise here to 1GB and still be able to run Vista with Aero smoothly. We've not seen any problems running everyday business applications under Vista with this quantity of memory.

Our chosen board also offers four RAM sockets, so there will be room to upgrade to the board's 8GB total with a 64-bit version of Vista. However, we've opted for the cheaper 667MHz PC5300 value RAM, because the faster flavours are at least 30 per cent more expensive and won't provide a significant boost in performance for the money.

For the rest of this system we have chosen to go for sensible budget components. For example, the ever-dependable Cooler Master Centurion 5 is an ideal chassis for under $80. It offers a decidedly capacious five 5.25in and five 3.5in bays, with four of the latter being internal. So, there's plenty of room for all manner of drive configurations. It has many tool-free features, with adaptor cards and all drives using retention mechanisms that won't force you to have a screwdriver handy.

Although you can get cheaper PSUs than the FSP 400W that we've specified to go in the Centurion, we wouldn't recommend going lower than 400W if you want a painless upgrade path to some of the power-hungry components that could be round the corner over the next few years — particularly graphics cards. Overburdening an under-specified PSU is a regular source of system instability, so this is best avoided.

FACT FILE

If your existing PC has two processor sockets, you will need the Business, Enterprise or Ultimate editions of Windows Vista.
The Home Basic and Premium editions allow multi-core processors, but only in one socket.

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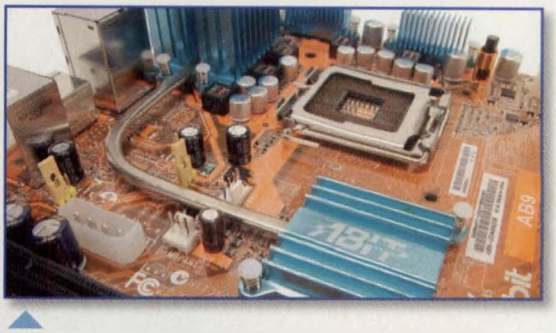
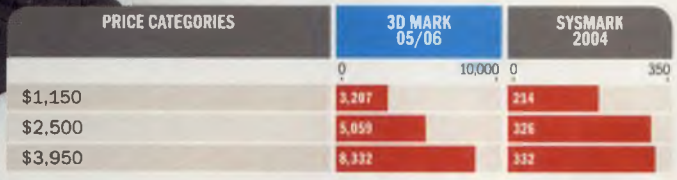
Build or upgrade to Vista

A $1,150 home-built PC, plus extra for a monitor, can run Vista's functions without a hitch.



For quieter systems, passive cooling with heat exchangers are excellent design features — but can be obstructive when building and placing cable runs.



To satisfy Vista's need for a DVDRW, we've chosen Samsung's SHS182M/BEBN, which is an absolute bargain at around $59, and it even includes Lightscribe disc label writing. We haven't specified a screen for this system, however; TFTs capable of HD resolutions are still outside of our meagre budget of around $1,100.

THE $2,500 PC

For our second example specification, we've doubled the budget so we can specify a full system with excellent performance right now, plus room to upgrade. This time, we've turned to Intel's Core 2 Duo for the processor — once you move beyond the low end of the value market, Intel's Core Microarchitecture has a clear price-performance lead. Although there are Core 2 Duos available for well under $300, both the E6400 and E6300 only incorporate 2MB of L2 SmartCache, so we would recommend shelling out that little bit more for the E6600, the cheapest option with 4MB of L2.

Instead of partnering the E6600 with budget RAM, though, we've plumped for the more expensive PC6400 variety of DDR2. You do pay a premium, but this will allow you to run the motherboard at its top 800MHz memory setting. Motherboards with Core 2 Duo support can set you back close to $300-$400, but the Abit AB9 we decided upon is priced at just under $200. It's still based on Intel's P965 chipset and has fanless heat pipes cooling its chipset, so should help to make your PC comfortabe. The AB9 is a great little board for the money, but it hasn't been certified for quad-core processors yet.

As we had a bit more to spend on this PC, we've chosen to go with meatier graphics, but still without going overboard. ATI's Radeon X1950Pro may not be natively DirectX 10, but Sapphire's version is explicitly HDCP-compatible, so won't be the stumbling block in enjoying HD protected content. It's also the best performing card in the $250 to $400 price range, with 36 pixel shader units on its 580MHz core. To partner this, we've chosen Dell's E207WFP TFT, because it's one we know is also HDCP-compatible. However, like virtually all screens in the same size category, the 20in E207WFP doesn't support full 1080-line HD video; its native resolution is just 1,680 x 1,050. But it will be perfectly capable of playing 720p.

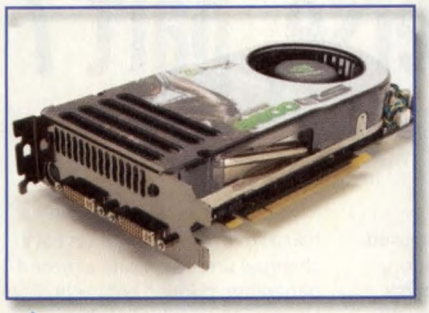
To house our system we've chosen Antec's excellent P180. It's a lot more expensive than the Cooler Master used in our budget machine, but not only does it look awesome, it's packed with novel features. Aside from using sound-proofed panels to reduce system noise, the topology is switched round so the PSU is at the bottom and the motherboard's at the top. Like most premium chassis, the Antec comes without a PSU so we've specified Antec's 480W. This isn't a monster supply, but will still be capable of driving future, more power-hungry components.

THE $3,950 PC

For a final example, we've upped the budget to a premium price of around $3,950. This system has much in common with our previous one, using the same core components of Intel's Core 2 Duo E6600 and 2GB PC6400 DDR2 SDRAM. While the E6700 has a 2.66GHz clock speed, so is a little faster, it's also over 60 per cent more expensive. With the X6800 nearly three times the price of the E6600, and the quad-core QX6700 even more expensive, buying either is only for those with a much larger budget than $3,950. Similarly, there's currently no reason to go for better RAM than the Corsair TwinX XMS2 kit we specified for the previous PC, unless you're planning to enter the shady world of overclocking.

One area where we have upgraded slightly is the motherboard. The Abit AB9 is an excellent board, but we've swapped this for Foxconn's 975X7AB, a mainboard based on Intel's premium 975X chipset. The 975X is slightly faster than the P965, and it also sports two 16x PCI Express slots — although one runs at 8x electrically. The second slot enables ATI cards in CrossFire mode, or in the future for a second card dedicated to physics processing. The 975Z7AB is already certified to support Intel's quad-core CPUs as well.

But the lion's share of the extra budget has allowed us to afford both expensive native DirectX 10 graphics and a pricey wide-screen monitor capable of full HD to go with it. At the time of writing, only Nvidia is offering native DirectX 10 graphics, in the shape of its GeForce 8800GTS and GTX. However, like the top Intel Core 2 Duo processors, the GTX version of the GeForce 8800 is only for those with a really obscene amount of money to spend on a PC, so we've specified the 8800GTS instead. This is still a pricey card, but just about sane for a $3,950 system. As well as featuring native DirectX 10 GPUs, Nvidia's



Nvidia's GeForce 8000 series runs DirectX 10 natively and offers full HDCP support for HD video playback.

Those extra power connectors are essential for modern components.

As with all Windows OSs, more memory goes a long way.

GeForce 8000 series is also HDCP-compliant, so you can watch protected HD content in all its glory.

Again, we've opted for a Dell TFT — you just can't beat the 2407WFP's features for the money. This 24in wide-screen offers a native 1,920 x 1,200 resolution, meaning it can play 1080i and 1080p HD video. It's got a built-in memory card reader and USB hub — as you would hope for over $1,000 — but more importantly, just like its 20in sibling, it's HDCP-compliant.

There is one caveat here, though. The first few revisions of this panel — A00 and A01 — allegedly only accepted 720p with HDCP, and had some image quality issues with HD content, but with the third revision A02 (and above), this has been fixed.

So if you do opt for the luxuries of the 2407WFP, make sure Dell sends you the A02, although the company was said to be offering a free upgrade to those with earlier versions who experienced difficulties.

WINDOWS VISTA IS NOT THE WICKED BEAST THAT RENDERS ALL OUR PCs OBSOLETE

We've kept the same Antec chassis here, but instead of the 480W Tagan supply, we've opted for a more powerful 750W Silverstone. PSUs rated at 900W or even 1,000W are now being marketed, but these are aimed at gaming machines with multiple premium graphics cards. The 600W supply we specified won't be up for monster Quad SLI, but it will handle a future quad-core CPU and a couple of DirectX 10 graphics cards, or most other power-hungry components you might wish to add.

Windows Vista is not the wicked beast rendering all our PCs obsolete that many feared. But to get the most out of it you'll have to consider some upgrades to your existing system, or maybe a whole new box. In this feature, we've indicated what you should be looking out for in your PC, and given you some ideas on what to upgrade. If you've had a play with Windows Vista, we hope you'll agree that it is worth the effort. Not only does Vista look pretty, but it's shaping up to be the most secure and stable Windows OS yet.

FACT FILE

While the 32-bit version of Vista has the same 4GB memory ceiling as XP 32-bit, the 64-bit version supports a lot more. Home Basic allows up to 8GB, and Home Premium 16GB. The Business, Enterprise and Ultimate editions can go up to a whopping 128GB.

DO THIS... **SPECIFICATIONS AND TEST RESULTS**

Three example Windows Vista PCs you can build yourself — one for every pocket.

Vista PC for $1,150 (no monitor)		Vista PC for $2,500		Vista PC for $3,950	
AMD Athlon 64 X2 3800+	$210	Intel Core 2 Duo E6600	$459	Intel Core 2 Duo E6600	$459
2x 1GB Corsair VS PC5300 DDR2	$310	2x 1GB Corsair TwinX PC6400 DDR2	$561	2x 1GB Corsair TwinX PC6400 DDR2	$561
160GB Hitachi T7K250 SATA300	$99	250GB Seagate Barracuda 7200.10	$137	400GB Samsung SpinPoint T	$211
Coolermaster Centurion 5 chassis	$72	Antec P180	$209	Antec P180	$209
FSP 400W PSU	$41	480W Antec	$139	750W Silverstone	$228.80
MSI NX7600GT-VT2D256EHD	$251.74	256MB Sapphire Radeon X1950Pro	$302.50	640MB XFX GeForce 8800GTS	$832
Samsung SH-S182M/BEBN DVD-RW	$59	Samsung SH-S182M/BEBN DVD-RW	$59	Samsung SH-S182M/BEBN DVD-RW	$59
MSI K9AGM-F	$105	Abit AB9	$199	Foxconn 975X7AB	$289
Monitor not included	NA	Dell E207WFP TFT	$449	Dell E2407WFP TFT	$1,099
Total	$1,150	Total	$2,514.50	Total	$3,947.80

Source: Shopbot.com.au, Staticice.com.au. Prices correct at time of writing and provide a general indication only, as prices vary.

Living in a Linux-only universe, part 7

Surprisingly, *Ashton* hasn't gone completely nuts whilst subsisting only on Ubuntu. Of course, the challenge isn't over yet...

ASHTON MILLS

Ashton has been a tech journo for over 12 years, including five years with *APC*.

THE RATINGS

In this project we're making the assumption that Windows does all that we need – and we're seeing if Linux and open source software measures up. Perhaps that's not an entirely fair place to sit; however, as the de facto in operating systems for which everyone is familiar, it's our best basis for comparison. So here's how we'll rate the experience of going Windows-free:

OPTIMAL
Passes with flying colours. The task could not only be completed, but better or easier than under Windows.

PASS
No problems. The task can be completed exactly as under Windows.

IFFY
When a task could only be partially completed or completed but not without issue.

FLOP
Not possible to complete at all. (Probably not a good thing.)

Last month we covered USB pluggable devices such as webcams, USB keys and cameras, then took it a step further and looked at the basic image management tools that come with Ubuntu. All went reasonably well after a few tweaks — but what about doing more than just managing images?

IMAGE EDITING

While Windows comes with Paint to do basic image creation, Ubuntu bundles something much more powerful — the popular GIMP (GNU Image Manipulation Program). In fact, The GIMP has enough depth and range of features to be a challenger to Photoshop, but, unlike the latter, is completely free. That said, it's still easy to use to do simple tasks like image resizing and conversion, cropping and filtering, and, of course, image editing — handy for building diagrams. This just happens to be a key tool for me — invariably when I'm writing on complex topics, diagrams are a boon, and I have in the past used The GIMP for diagram creation, so it's vital I have this under my Ubuntu desktop if I'm to be able to use it as my workhorse operating system.

Even better, you don't even need Linux to use it — it's so popular there's also a Windows version which looks and acts just the same as under Linux.

1 For a change, this is one function on my Ubuntu system which works flawlessly. You can't get a better-featured, bundled-as-part-of-the-operating-system, image editor than The GIMP.

PRINTING

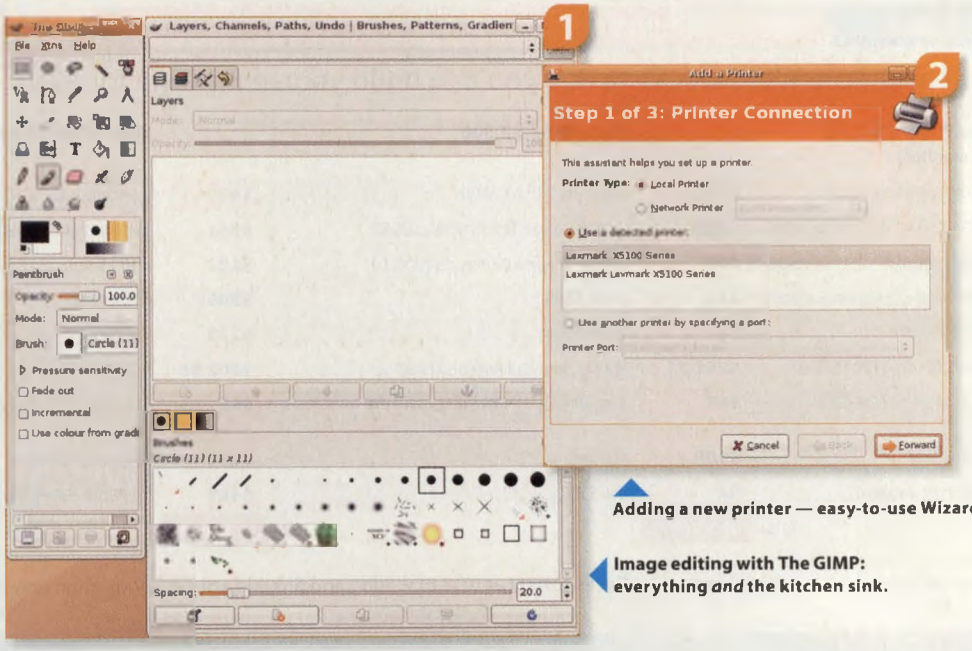
I've been avoiding printing since I started this escapade, because the last time I tried setting up a printer under Linux, admittedly a while ago now (read: years), it resulted in days of fruitless trial and error. While at the time it was the hot new thing for many vendors to provide Linux drivers, or at least documentation for developers to write drivers, printer companies had a stoic response. Things have changed since then, and a second-generation printing engine in Linux by the name of CUPS (Common Unix Printing System) provides drivers and filters to drive a vast array of printers under Linux, many of which now have official support from the big name vendors.

But that doesn't mean it's going to work, of course.

Since I rarely use a printer much myself, I snarfed my significant other's Lexmark X5150, said a silent prayer, plugged it in and loaded up the print manager.

2 Selecting to add a new printer, to my pleasant surprise, it came up detecting the Lexmark, but as an X5100 series. No problem, sounds like it's of the same stable as the X5150, and so clicking forward installed the printer with the recommended "x125" driver. All looked good, and I selected to print a test page.

3 No go. The printer didn't even twitch. Just because you never know, I tried some of the other Lexmark drivers that sounded similar to the X5150, but



Adding a new printer — easy-to-use Wizards.

Image editing with The GIMP: everything *and* the kitchen sink.

The Ubuntu printer test page. Success!

A wide selection of Lexmark drivers, but not for my printer.

Setting up a network printer is a snap.

The installed printer with a page in progress.

to no avail. So, off as usual to the web for answers — always an option, but so much for the plug and play easy to use desktop.

From both Lexmark's own site and the Ubuntu forums, I found my answer — the X5150 appears to be one of the few printers, out of hundreds, that CUPS doesn't have a driver for. Additionally, while Lexmark *had* made drivers available, they were developmental and for another printer series, and pre-packaged for other distributions including Red Hat and Mandrake but not Ubuntu.

But then, let's remember, distributions of Linux are all still Linux. If the drivers were a binary, there could be unresolvable dependencies (ie. files it depends on) between distributions, but we're talking printers here and usually all they need, and especially what CUPS is looking for, is an appropriate PPD (PostScript Printer Definition) file, just the same as can be used under Windows.

Following a link to an archive file on Lexmark's site, I downloaded an RPM (another Linux-based package format) for the X55 driver, which in part also supports the X5150, and ran the install script from the command line — well and truly beyond what your average user should be expected to do, but I don't give up easily.

> NEITHER UBUNTU OR THE CUPS TEAM CAN FORCE A DRIVER OUT OF A MANUFACTURER THAT DOESN'T WANT TO SUPPLY ONE

The script failed for whatever reason, but all was not lost yet. I don't actually need it to install the way the RPM file expects, I just need the PPD file.

Manually opening the RPM, I found and extracted the X55 PPD to my desktop.

Back in Gnome's print manager and selecting to add a new printer, I again chose the Lexmark X5100 series and this time selected to load my new PPD from the desktop for the driver.

4 Voila, she printed a test page perfectly. But what a lot of work.

I know I've gone off at various failures with Ubuntu in this challenge so far, but here it seems the problem lies more with Lexmark. Neither Ubuntu or the CUPS team can force a driver out of a manufacturer that doesn't want to supply one, and for whatever reason Lexmark has made available drivers for others in its range, but not this particular printer except through a distribution-dependent umbrella driver for another in its range.

Still, there's more to test — can I print to a network printer?

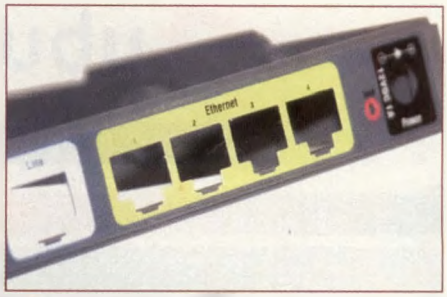
Putting the Lexmark back on the SO's Windows box, I added an SMB (Server Message Block, aka. Windows' file sharing protocol) printer and pointed it to the Lexmark shared from the Windows box. Again, I needed to select a driver, and with the X55 driver installed I chose this and, with ease, again printed a test page. The wizard dialogs for the printer manager made this a snap to set up.

Overall, it's hard to mark this one fairly, as CUPS supports hundreds of printers and is a staple printer framework for businesses around the world — I just happen to have one not on the list. Once I sourced and installed a driver though, the CUPS management features through the Gnome desktop worked beautifully (and is reminiscent of the print manager under Windows). All applications, from the text editor Gedit to OpenOffice, had no problem seeing, configuring, and using the printer, including the array of options for DPI resolution, paper sources, colour and more.

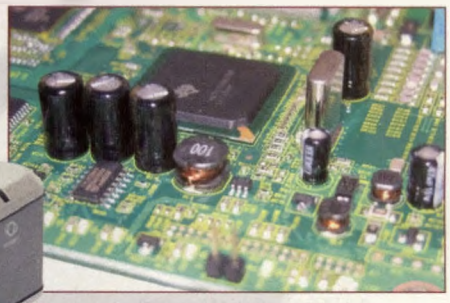
5 and 6 You just need to make sure you have a supported printer, which fortunately is quick to do by searching on the CUPS web site (**www.cups.org**). Next month, the holy grail of gaming. Linux isn't exactly a DirectX junkie, so just how will a playful Tux fare? LXF

This month we explode the Linksys WAG54 v3 Wireless-G ADSL Gateway modem router, which gives you ADSL2+ broadband and wireless networking.

1. Top plastic casing — ventilated for additional airflow to allow cooling.
2. Protective flexible plastic cover for wireless LAN antenna.
3. InfineonADMtek 6996IX/LX (Dual Layout) / 4 ports 10/100 Ethernet LAN chipset — this drives all of the functions on the 10/100 4-port LAN switch, which local devices can use to access the ADSL/ADSL2+ internet connection.
4. Printed circuit board (PCB) on which all active/powered components of the Gateway reside.
5. Plastic side housing, with cutouts for WLAN antenna, power switch, power pack, RJ-12 ADSL2+ interface, 4-port 10/100 Ethernet switch and reset button.
6. Removable 2dBi Reverse SMA antenna to allow for Wireless LAN clients to access the ADSL/ADSL2+ internet connection.
7. Lower plastic casing — also ventilated for additional airflow to allow cooling.
8. TI TNETD 7200, ADSL2+ chipset — this provides all the functions of the ADSL/ADSL2+ modem to allow connection to the internet.
9. Rubber feet for scratch-free desktop placement.

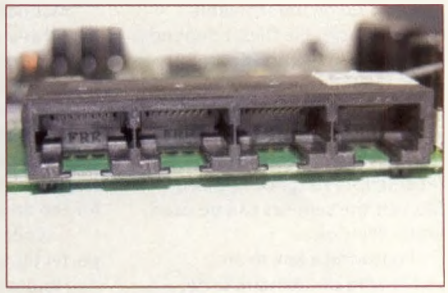


Rear panel — these cutouts are (from left to right): the ADSL port, 4 x 10/100 Ethernet ports, reset button and power connector.



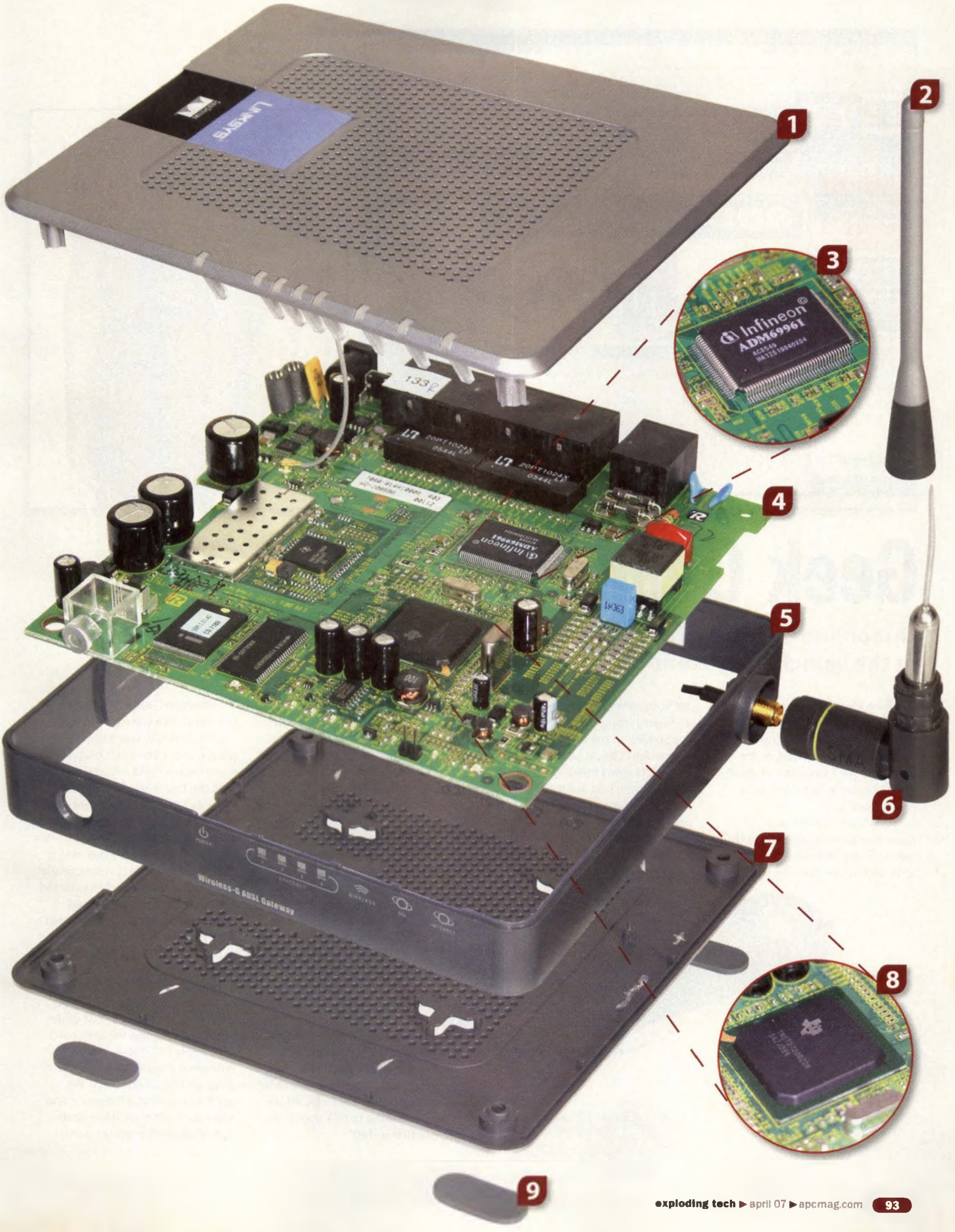
Section of the PCB including capacitors, resistors, ADSL chipset and other ADSL related electrical components.

Front panel — Status LEDs (left to right): power, Ethernet 1-4,wireless, DSL, internet.

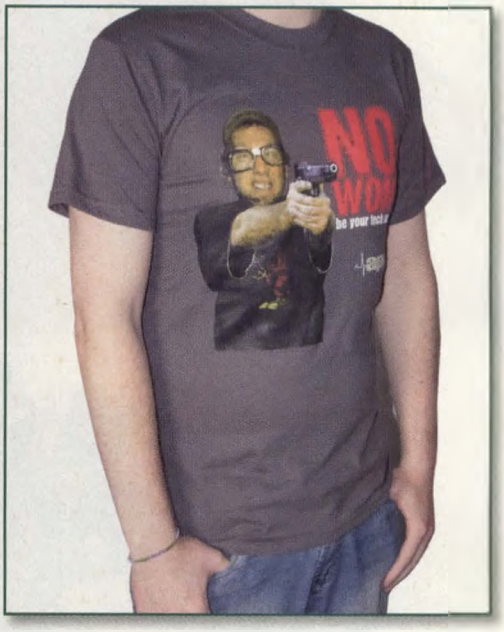


4 x RJ-45 10/100 Ethernet jacks.

Linksys Wireless-G ADSL Gateway



Here it is: Geek Gear, with some of the gadgets on sale.



Geek Gear is go!

Our online e-commerce store is now trading — but there were plenty of nerves at the launch. *Tony Sarno* reports.

The idea for this series on e-commerce was that by actually creating an online store, we could report on it from the inside. So we'll keep to our word and take you inside the drama of the launch.

As with every site launch I have ever been associated with, we were late. We were meant to launch when the mag first hit subscribers on Thursday, 8 February (roughly a week before it appears on the newsstand), but we couldn't because we still had products shots missing. Some of the gear still had not turned up from suppliers, so after a brief conversation with Luke Amery at NetMerchant — our partners in Geek Gear — we decided to move the launch to the following Monday (three days before *APC* appeared on the newsstands). When we decided this, in a phone conversation, I could hear programmers Henrik Milton and Philip Street at NetMerchant exhaling loudly in the background.

But as it turned out, it was still a death march to get Geek Gear out despite the few days grace. When the online store finally went up on Monday morning, Luke and Philip had worked through the night. When Luke wrote on the home page of Geek Gear that his team had done the "heavy lifting", I could not have agreed more.

I was just doing all the worrying. In the first few minutes of a store's life, all the owner wants is the first customer. I found myself thinking stupid things, like, "What if no customers come? What if the whole thing has been a mistake?"

But the nerves disappeared when we made our first sale that morning. At 9.59am, Luke sent me an email. It said: "Well, at least we have something to talk about: we got our first order!"

To which I replied: "Historic moment!" We were on our way.

The first sale was a USB MP3 player. There were celebrations all round when I told *APC* staff we'd sold our first item. At the end of the first day's trading, Luke (who was manning the online store) reported back that we'd had a steady stream of orders through the day, seven in total. The gadgets were popular at first, and then the shirts started catching up. No-one seemed interested in the caps, which was a worry because we'd imagined the caps would have been popular.

Revenues from day one were a promising $451.75. If that rate can be sustained we can break even on the project in just under 100 days. We have to cover costs of roughly $35,000 — the amount it took us to set up the shop and fill it with stock. We will be providing a full profit and loss report after we have been operational for a longer period.

apc
APC Gear / Gadgets
Wifi Detector / Spectrum Analyser
A$39.95*
ENLARGE IMAGE >>
ADD TO CART >> QTY 1
Order Code
APC-Wifi
Product Description
Use this detector to sniff out those annoying black spots in your wireless network. What's that? You don't have a wireless network. Perhaps you should get one of your own, because we certainly wouldn't recommend taking this device on a wardriving mission, now would we?
Tech Specs
Detects best hot spots up to 50 metres.
Product Size: 55mm x 40mm x 10mm
* All Prices Include GST.

The Wi-Fi detector was also popular. One buyer said he would be using the detector to find "holes" in his Wi-Fi coverage at home. (He would not be using it in his car as he drove down the street.)

apc
APC Gear / T-Shirts
DETAILS >>
5 options available
No I Won't
A$29.95 (inc GST)
Sick of being tech support for family and friends? Make it clear that you won't be their tech slave any longer!
DETAILS >>
5 options available
Push the Right Buttons
A$29.95 (inc GST)
Geeks definitely know how to push all the right buttons and this shirt will shout it out loud!
DETAILS >>
5 options available
You + Me
A$29.95 (inc GST)
If she doesn't get the joke, she won't get you. Clear up any confusion from the beginning with this tee.

In our excitement we forgot that the slogan on the "No, I won't be your Tech Support" shirt wasn't visible on the photo we uploaded to the online store.

On day one we also got plenty of feedback from readers. These included requests for better product information. Luke pointed out this was a sure indication that our detailed descriptions were not up to scratch (we have progressed a little on that since going live).

The other problem highlighted to us was that despite all the checking and planning, we used photos of the T-shirts which did not display their slogans in full. When the T-shirts are being sold on the basis of the funny slogans, this is a major oversight (see picture).

When shooting the T-shirts for the online catalogue in *APC*'s photo studio, we probably got carried away with trying to make them seem life-like, even getting our sub-editor, Peter Dockrill, to model them.

They looked good in the photos, but we forgot about the visibility of the slogans, particularly the "No, I won't be your Tech Support" one. We subsequently reshot the T-shirts with the slogans showing more clearly.

AT 9.59AM, LUKE SENT ME AN EMAIL: "WELL, AT LEAST WE HAVE SOMETHING TO TALK ABOUT – WE GOT OUR FIRST ORDER!"

Some users saw us as too male-oriented. One female reader thought our T-shirts about Geeks being sexy wouldn't necessarily make the wearers chick magnets. All I could say was that only those readers who bought the "Geeks know how to press the right buttons" T-shirts would be able to tell us.

But the universal observation (not really a complaint, more a wish) was that our range of stock wasn't as large as some expected, certainly not on the scale of ThinkGeek, the big US-based online store that sells geek-oriented gear. We're hoping that as we grow we'll increase the range of products, but for now we're keeping it modest to ensure the business can meet its financial targets.

To learn about e-commerce, there is no better way than to follow our regular blog on the progress of Geek Gear. It's called "Reality e-commerce," at **apcmag.com**. It also features the milestones and key decisions we made to get Geek Gear off the ground.

Linux file systems uncovered

Do file systems have a purpose?

Paul Hudson and *Graham Morrison* find out.

WHAT'S COVERED

- If a file system is just a system for storing files, why are there around 20 different file system varieties for Linux? The answer is that they all have their own strengths and weaknesses, and you may find the best option for you isn't the default. Along the way you'll also learn just why journaling is so important, how file permissions work and what the chances are of recovering a file you deleted by accident.

HANDY TIP

As if there weren't enough virtualisation technologies for Linux already, XEN, VMware and Parallels Workstation have a new bedfellow in the shape of KVM. KVM is a virtual machine monitor that uses a loadable kernel module for running unmodified Linux and Windows virtual machines. The latest version of the Linux kernel includes patches for the new module. This is as close to an official Linux endorsement as you can actually get.

There's AT32, NTFS, ext2, ext3, ext4, ReiserFS, XFS and more. With so many file systems to choose from, how can you know which one's best? The most popular file system in Linux is ext3, not because of any particular technical advantages, but because it has been around for a very long time and is regarded as very stable. The 3 on the end indicates it's version three of the file system — the previous version was ext2, for example.

One of the reasons that the ext family of file systems is so stable is because it has been produced by building on top of the previous version, and adding new features that don't break compatibility. Before ext3 came along, ext2 was the most popular Linux file system — and the two have a lot in common. They're so similar, in fact, that you can take an ext3 file system, mount it as ext2, and it will still work.

The primary difference between the two is ext3's ability to work with a file system journal. Imagine this particular scenario: you have a server that stores important data for your company. During a particularly busy period of hard disk writing, someone trips over a power cable somewhere and the server immediately runs out of juice and switches off. If that server were running with ext2 file systems, there would be a slim chance the sysadmin would get a warning message about an unrecoverable file system when users next powered the machine on. But ext3 uses a file system journal, which is designed to track all the disk writes that take place, so that if anything does go wrong — including something as extreme as an immediate power cut, the file system can be recovered perfectly every time.

The next version of the ext3 file system, known as ext4, has already entered production and includes several brand-new features that are designed to boost the speed and reliability. At the top of the feature list is file system extents, which pre-allocates a file more space than it actually needs, so that it can grow into the space without causing any disk fragmentation.

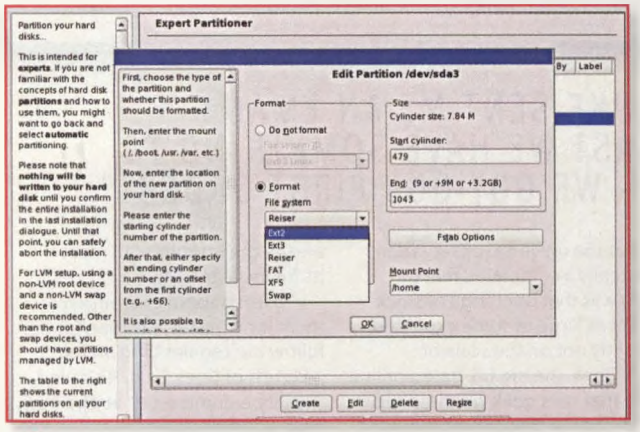
REISERFS

Hans Reiser's ReiserFS file system was easily one of the most technologically advanced file systems available on Linux, but ext3 and ext4 are catching up. When it was first released, ReiserFS had impressive features, such as the ability to grow the size of a file system partition while the hard disk was being used, as well as tail packing, which is a method of saving space by storing multiple parts of files in the same hard disk block. Reiser's technological lead attracted a lot of support from Linux companies, as well as governmental agencies, including a great deal of financial support from the Defence Advanced Research Projects Agency (DARPA) in the US.

ReiserFS was used as the default file system for SUSE Linux for several years, but late last year Hans Reiser was arrested and charged with the murder of his wife, and has since had to put his file system development company, Namesys, up for sale so that the proceeds can go toward his legal costs. Since then, Novell has backed away from ReiserFS as its default file system, and has switched to ext3. At this time, ReiserFS is still in widespread use in the Linux community, but its fate looks uncertain for the foreseeable future.

FAT32 AND NTFS

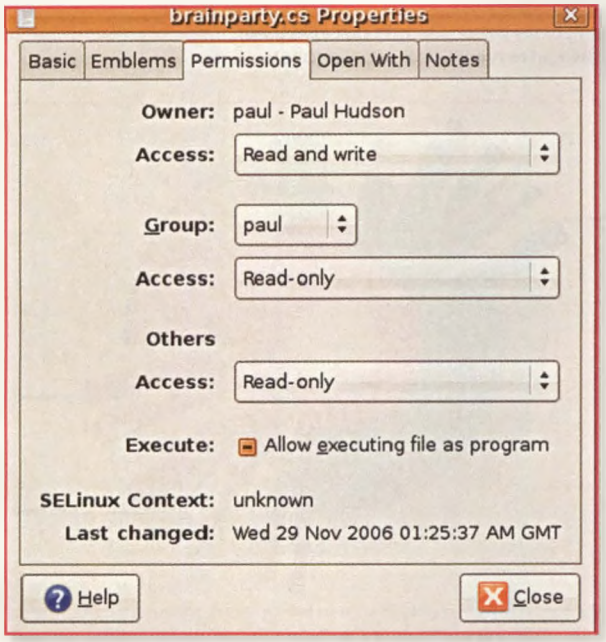
Having Linux and Windows share the same data is no easy task, and it really comes down to three



Most Linux distros ship with support for the most popular file systems, but ext3 remains the most accepted file system of all.

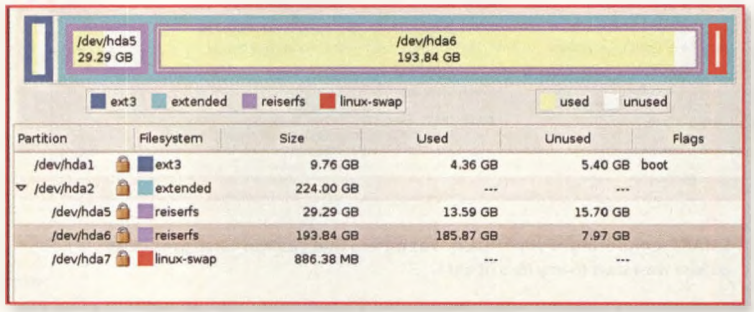
Using ls, chmod and a little patience, you can manipulate file system permissions using the command line.

```
paul@trixie: ~
File  Edit  View  Terminal  Tabs  Help
4.0K drwxr-xr-x 7 paul paul 4.0K 2006-11-02 11:48 brainparty
7.5M -rw-r--r-- 1 paul paul 7.5M 2006-10-27 10:07 brainparty-0.1.tar.gz
4.0K -rw-r--r-- 1 paul paul 3.2K 2006-11-18 13:59 cdcollection.odb
 54M -rw-r--r-- 1 paul paul  54M 2006-11-18 14:27 data.txt
4.0K drwxr-xr-x 3 paul paul 4.0K 2006-11-29 01:01 Desktop
   0 lrwxrwxrwx 1 paul paul   26 2006-10-27 00:48 Examples -> /usr/share/example-content
4.0K drwxr-xr-x 3 paul paul 4.0K 2006-10-27 10:07 foo
4.0K -rw-r--r-- 1 paul paul  365 2006-11-28 17:04 foo.c
4.0K -rw-r--r-- 1 paul paul 2.6K 2006-10-27 10:28 header.php
 72K -rw-r--r-- 1 paul paul  65K 2006-10-27 10:35 index.php
4.0K -rwxr--r-- 1 paul paul  243 2006-11-18 14:26 insert.php
4.0K -rw-r--r-- 1 paul paul   15 2006-11-02 12:47 moo.html
4.0K -rw-r--r-- 1 paul paul   23 2006-11-02 12:41 moo.html~
4.0K -rw-r--r-- 1 paul paul 3.1K 2006-11-18 14:09 MySQL.odb
 13M -rw-r--r-- 1 paul paul  13M 2006-11-02 09:58 NVIDIA-Linux-x86-1.0-8776-pkg1.run
4.0K drwxrwxr-x 5 paul paul 4.0K 2006-09-27 12:27 OOo680_m5_native_packed-1_en-US.9073
137M -rw-r--r-- 1 paul paul 137M 2006-11-18 13:25 OOo_2.0.4_LinuxIntel_install_wJRE.tar.gz
2.5M -rw-r--r-- 1 paul paul 2.5M 2006-11-29 00:50 practise2.ogg
3.4M -rw-r--rw- 1 paul paul 3.4M 2006-11-29 00:42 practise.ogg
 84K -rw-r--r-- 1 paul paul  79K 2006-10-27 01:20 proglist.txt
4.0K -rwxr--r-- 1 paul paul  331 2006-11-28 11:15 search.php
4.0K -rw-r--r-- 1 paul paul   23 2006-11-02 12:22 Unsaved Document 1
   0 -rw-r--r-- 1 paul paul    0 2006-11-02 11:59 Unsaved Document 1~
paul@trixie:~$
```



The Gnome Properties dialog lets you graphically change the permissions of any files and folders, but try not to lock yourself out!

GParted, started from a Live CD like Ubuntu, is the best way of resizing and managing your disk partitions.



HANDY TIP

OpenSUSE 10.2 was released in mid-December. It was the first release of the Novell-sponsored distribution after it announced the formation of an alliance with Microsoft. One of the main features for the new release is the switch to the ext3 file system. There's also a glut of the latest Linux software, including Firefox 2, Gnome 2.16 and the Mozilla Seamonkey internet application suite.

possibilities: use an external hard drive, boot both computers at the same time and use Samba to share a directory, or create a common partition that's formatted with FAT32.

FAT32 is a file system introduced way back in the days of Windows 95, and uses a very simple and fast disk structure. As a result of this, it has been supported on Linux almost since it was first released, which, in turn, means that it's a very safe way to have both Windows and Linux read and write to the same drive partition.

NTFS is the newer Windows file system, and has been the standard since Windows 2000. Exactly how NTFS works is actually a Microsoft trade secret, so numerous attempts have been made in the free software world to figure out just how it works. At this point, the only thing you can do with absolute safety is read an NTFS partition from Linux. Recently, many distros have offered NTFS resizing during installation, which is where the distro shrinks the Windows partition down to leave space for the new Linux install. At first this was quite flaky, but it has settled down now and is generally considered safe, too. That said, standard writing to an NTFS drive is discouraged, so it's best to avoid it if possible.

THE UNIX PERMISSIONS

All of the files on your file system — no matter whether you're running ext3 or ReiserFS — have a set of access permissions associated with them. These permissions are divided into three types: User, Group and Others. User is the person who created the file — and ultimately has complete control over it. Group is designed to let administrators group users together and then assign permissions per group rather than simply per user. Others is just that — what permissions people who don't come under the User or Group categories should have at their disposal.

Each of these three is then subdivided again into three more types: read, write and execute. Usually the owner of the file has both read and write privileges — and possibly also execute, if it is a program — whereas other people have just read. If you want no-one except the owner to be able to read the file, just set the file to be read-only by the user. It's also possible to set files to be write-only, which might seem strange at first, but is very useful when you want to log your users' actions without them being able to read that log themselves.

Gnome allows you to view the permissions for any file by right-clicking on it and selecting Properties, then choosing the Permissions tab. But generally people work with permissions on the command line, because it's easy to see lots of information at the same time.

To try this out, start up a terminal and run "ls -lsh" to see a list of all the files in long format (which prints out file permissions), and with size information presented in a human-readable format. You should see something like this:

```
4.0K -rw-rw-r-- 1 paul paul 2.5M 2006-01-28 00:50 wombat.txt
2.5M -rw-r--r-- 1 paul paul 2.5M 2006-11-29 00:50 foobar.txt
```

The first field there (ie. 2.5M) is the size of the file, but we're interested in the second: -rw-rwr--. Those last nine parts are the "user read write execute", "group read write execute" and "others read write execute" bits, so we can break that permission string down into this:

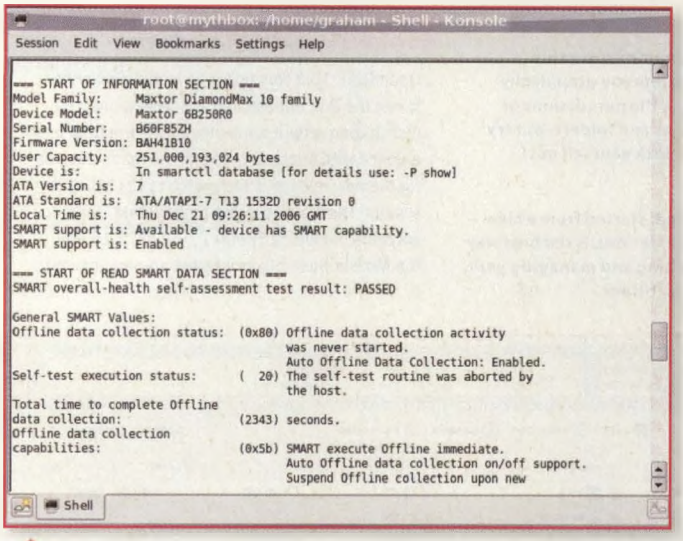
– user can read and write
– group can read and write

DO THIS... RECOVER DELETED FILES

Linux takes a very dim view of people accidentally deleting files, which means that if you do delete a file on an ext3 partition, it's almost certainly gone forever. In fact, just to make sure it's properly obliterated, the ext3 file system automatically writes lots of 0s over the file's information record – so that it can't even be recovered using specialised tools. If you're absolutely desperate, and the file you're after is text, your best bet is to use a command like this:

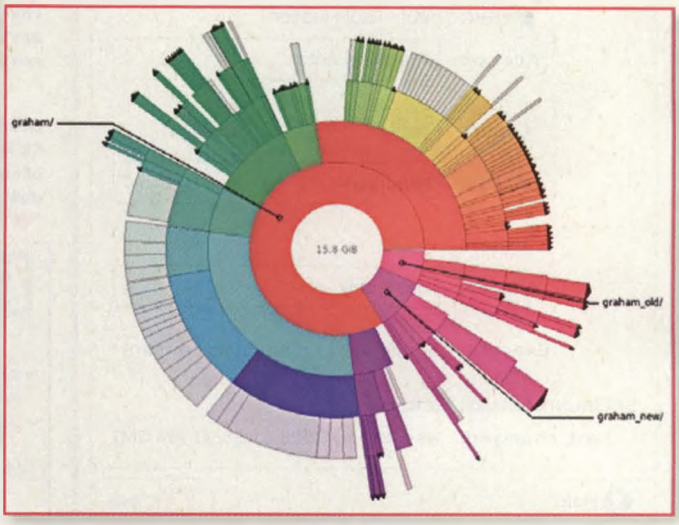
```
grep -30 --binary-files=text "your text" /dev/sda
```

If you have a non-SATA IDE hard disk, you might need to use /dev/hda rather than /dev/sda. This searches on the actual physical contents of the hard disk, and will shows 30 lines before and after any matches it finds. If that's not enough, increase 30 until you can see your whole file, at which point you should copy and paste it into a text editor quickly and back it up somewhere safe.


root@mythbox: /home/graham - Shell - Konsole
Session Edit View Bookmarks Settings Help
=== START OF INFORMATION SECTION ===
Model Family: Maxtor DiamondMax 10 family
Device Model: Maxtor 6B250R0
Serial Number: B60F85ZH
Firmware Version: BAH41B10
User Capacity: 251,000,193,024 bytes
Device is: In smartctl database [for details use: -P show]
ATA Version is: 7
ATA Standard is: ATA/ATAPI-7 T13 1532D revision 0
Local Time is: Thu Dec 21 09:26:11 2006 GMT
SMART support is: Available - device has SMART capability.
SMART support is: Enabled
=== START OF READ SMART DATA SECTION ===
SMART overall-health self-assessment test result: PASSED
General SMART Values:
Offline data collection status: (0x80) Offline data collection activity
was never started.
Auto Offline Data Collection: Enabled.
Self-test execution status: (20) The self-test routine was aborted by
the host.
Total time to complete Offline
data collection: (2343) seconds.
Offline data collection
capabilities: (0x5b) SMART execute Offline immediate.
Auto Offline data collection on/off support.
Suspend Offline collection upon new
Shell

SMART monitoring of your disk drives means that you can catch problems before they lead to any loss of data.

If you want to see where your disk space has gone, launch filelight to see which directories have large files.



– others can just read

To make it so that others can write to the file, we need to use the chmod command. This takes two parameters: the change to make and the files to change. The change to make is made up of multiple letters, followed by either a plus or a minus sign, followed by multiple letters. For example, to let people in the group or others write to the file foobar.txt, we could use this command:

```
chmod go+w foobar.txt
```

That stands for Group and Others + Write. If we didn't want to let ourselves execute the program by accident — maybe you know it has a virus, for example — you could use this command instead:

```
chmod u-x foobar.txt [end code]
```

There's a still lot more that we can learn about file systems and sharing, but at least now you should have a good idea of which file system is right for you, how best to share files with Windows users and also how to set permissions so that you have complete control over who can read and write your files.

But while it's good to know about all the file systems available to Linux, how do you get to use them? Most of the time, a distribution will make an intelligent guess and use ext3 by default when creating and formatting a new disk partition. But you do have a choice, even if you have to work a little harder to exercise it. The easiest way of using the file system you want is to know which file systems you need while you're installing your Linux distribution. It's at this stage that you typically get the option to select your own. After your distribution has been installed and configured, switching to a different file system is a great deal harder. It involves carefully backing up all your data, recreating your disk partitions with the new file system before restoring your data onto the new partitions — not an easy job. It's worth noting that even if you don't want to make quite such drastic changes to your file system, it's still important to have an up-to-date backup of your data before you make any changes, just in case there's a freak power cut while your partition table is being written to disk.

> IT'S ALSO PERFECTLY POSSIBLE TO REFORMAT A PARTITION FROM WITHIN YOUR CURRENT WORKING ENVIRONMENT

PARTITION YOUR DATA

The biggest problem with changing file systems is that to be able to mess around with the disk partition you work on, it needs to be mounted as either read-only or completely unmounted. This is part of the reason why the Linux boot procedure uses a temporary virtual RAM disk for checking your drives when you first start a system. Fortunately, Linux has the perfect answer. This is a job the Live Linux distribution was made for. Booting Linux off a CD means that you can access your hard drive without having to mount any partitions, make the changes you need and boot back into your operating system. There are many Live distributions to choose from, but the Edgy version of Ubuntu (6.10) offers the latest version of the partition-editing tool GParted, accessible from the System menu on the desktop. Resizing current partitions and creating new ones with GParted is as simple as selecting the disk and either clicking on New or dragging the border of a current partition to resize it. The file system can be defined by double-clicking on the partition, and selecting your choice from a drop-down list. After clicking on Apply, GParted will format each partition and destroy any data that was previously on the disk.

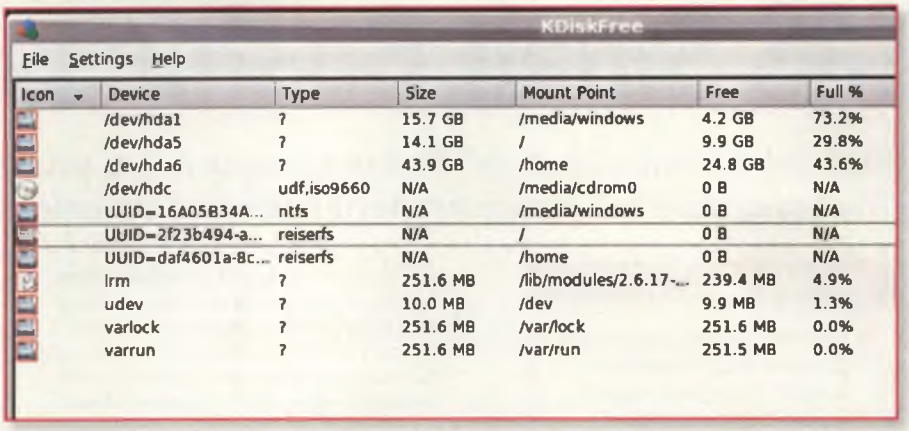
FINDS A FILE SYSTEM

It's also perfectly possible to reformat a partition from within your current working environment — it just needs to be either a new partition or one that has been unmounted. The command for performing the format is called "mkfs" — an abbreviation for "make file system". You can declare which file system you want to use with the "-f" flag, but most Linux distributions will include extensions to the mkfs command for each supported file system. For example, the command "mkfs.ext3" will format a disk using the ext3 file system, while "mkfs.msdos" will use the old "msdos" or "fat" format. The only other parameter required is the device you need to format, which is normally something like "/dev/hda5" or similar. The primary device is "hda", while the 5 signifies the fifth partition on the primary device, and "hdb1" would be the first partition on the second device, for example. Getting this wrong will mean you lose data, so make sure you know which partition you need to format before pressing carriage-return.

There are two more disk/partition-oriented commands that use the file system type as a descriptor, and the first is for use in an emergency. The "fsck" command is used when there are problems with your file system, and, as with "mkfs", it needs to be proceeded by the file

HANDY TIP

KVM requires a modern processor, using either Intel's VT technology, or the equivalent from AMD, and features a userspace component along with the kernel driver. The userspace component is a modified version of QEmu, the application often used as an operating system emulator. KVM operates within the realm of ordinary kernel operation. This makes KVM much smaller and simpler to use.


KDiskFree
File Settings Help
Icon Device Type Size Mount Point Free Full %
/dev/hda1 ? 15.7 GB /media/windows 4.2 GB 73.2%
/dev/hda5 ? 14.1 GB / 9.9 GB 29.8%
/dev/hda6 ? 43.9 GB /home 24.8 GB 43.6%
/dev/hdc udf,iso9660 N/A /media/cdrom0 0 B N/A
UUID=16A05B34A... ntfs N/A /media/windows 0 B N/A
UUID=2f23b494-a... reiserfs N/A / 0 B N/A
UUID=daf4601a-8c... reiserfs N/A /home 0 B N/A
lrm ? 251.6 MB /lib/modules/2.6.17-... 239.4 MB 4.9%
udev ? 10.0 MB /dev 9.9 MB 1.3%
varlock ? 251.6 MB /var/lock 251.6 MB 0.0%
varrun ? 251.6 MB /var/run 251.5 MB 0.0%

A typical Linux distribution will use many different partitions that were created during installation or split apart when in use.

system type to be useful. For example, typing "fsck.ext3 -p" is often used to automatically repair any problems. You'll know you've got problems with your file system if you start to see errors while your system boots or while looking through your log files. In fact, it's "fsck" that's run at boot time to try and catch errors before it's too late. An error might look something like "hda: drive_cmd: status=0x51 { DriveReady SeekComplete Error }". These errors will be generated whenever there's a read or write failure and could be the result of a power failure or system crash, or it might also signify failing hardware.

SMART TOOLS

Complete hardware failure can be pre-empted before the file system starts to generate errors by installing the smartmontools package for your distribution. This is a tool for monitoring hard drives using SMART (self-monitoring, analysis and reporting technology). It helps you to understand how your drive is performing, its operating temperature, as well as issuing a warning if things start to fail. This should give you enough time to get your data off the drive before you lose anything. Once the tools have been installed, you can enable the monitoring by typing "smartctl --smart=on /dev/hda". You can then probe the disk device using further smartctl commands, such as "smartctl --all /dev/hda" to print all available information to the screen. There will be a great deal of output, but it's all fairly easy to understand. If you want to put your hardware through its paces to see how it performs, and possibly highlight the early stages of a problem, type "smartctl --test=long /dev/hda" to give your hard drive a gruelling 100 minutes of an extended self-test routine.

Once you've formatted your partition, and ascertained that there are no imminent problems, you can start using the free space by mounting the partition onto your system. This is accomplished by using the sensibly named "mount" command, and it takes the format "mount -t ext3 /dev/ hda5 /mnt/point". "ext3" is the file system, and needs to be changed to the file system used to format your drive. "/dev/hda5" is the source partition you want to access, while "/mnt/point" is the destination folder you want to attach your new partition to.

UMOUNT COMMAND

Once the command has been executed, anything you copy or move to /mnt/point will be written to the new partition using your file system of choice. The corresponding "umount" command will remove the mounted drive from your system, but you should type "sync" to make sure any disk buffers are emptied before the drive is unmounted and no data is lost in transit to the new partition. Your Linux system can manage this automatically if you add your new partition to the / etc/fstab file. This includes definitions for each file system currently mounted on your system, and adding an entry will mean that manual intervention won't be needed. The format for each entry in /etc/fstab is as follows here:

#device	mount point
type	options
dump	pass
/dev/hda5 /mnt/point ext3	
defaults 0	0

The comment line — preceded with a # symbol — explains what each field is for. The options field, which is set to "defaults" in our example, allows you to provide further detail that a file system might need, such as access restrictions or sub-formatting information. The "dump" and "pass" are a little redundant, but when enabled, they allow your system to dump the contents of your file system and change the order that each are checked at boot time.

This configuration file isn't just used for local file systems though: it's also possible to mount network shared devices in the same way using either the Network file system protocol (NFS) or Samba. In the case of NFS, for example, the device becomes the remote location (such as "192.168.1.1/ home"), the mount point is the local destination, the type would be "nfs", while the options field sets specific NFS access settings — "rsiz e=1024,wsize=1024,noauto" is commonly used. You will still need to export the directory on the NFS server, but by adding an entry to the fstab file you can make sure that it'll be mounted automatically whenever your system starts. apc

SPOTLIGHT ON... FDISK

Graphical tools, such as GParted, aren't for everyone. They may be convenient, but they're neither as flexible nor as versatile as a command-driven counterpart. The command-line equivalent is "fdisk", which is a universal command for changing and editing the disk partition table. You can even find this command tucked away inside a Windows installation, and each version is broadly similar to use.

Typing "fdisk /dev/hda" will bring up a simple query/response interface, and then you'll need to type "m" to bring up the available options for your disk. This is how all the main commands are executed in fdisk – the same way as terminal email clients of old. The most important commands are "p" to display the current partition table, "d" for deleting a partition and "n" for creating a new partition. Any changes you make are made permanent by pressing "w", which will save changes.

A typical fdisk session goes like this: launch fdisk, followed by the drive you want to update. Press "p" to see the partition table and delete any current partitions by pressing "d" or go straight to creating a new partition by pressing "n". You'll then need to specify whether the new partition is going to be "extended" or "primary". Choose primary, followed by "1" for the partition number. Press return to use the first cylinder of the driver, and use a value in megabytes for the size of the partition. Press "t" followed by "1" to specify the file system for the partition (use "L" to list the types available), and press "w" to write the changes and close Fdisk.

MS Small Business Specialist

Running a computer shop? Trying to make it as a small business IT consultant? The Small Business Specialist designation might help, says *Paul Schnackenburg*.

HOW DO I GET IT?

- The Small Business Specialist title is not individual; it's linked to a company. The requirements are:
  1. The business needs to be a registered partner with Microsoft. This is done online and is free.
  2. One individual in the business has to have passed one Microsoft Certification exam, either 70-282, Designing, Deploying and Managing a Network Solution for Small and Medium-Sized Business, or 74-134, Pre-installing Microsoft Products and Technologies Using the OEM Pre-installation Kit. Normal exam cost is $180. Of these, 70-282 is by far the most popular as it's geared towards consultants, whereas 74-134 is for OEM server builders.
  3. The business needs to subscribe to the Action Pack or be a Certified / Gold-Certified Partner. If your business writes software, the Microsoft Empower for ISVs program can be substituted for the Action Pack.
  4. One individual needs to have passed the Small Business Sales and Marketing Assessment. This is done online – it's free, and can be retaken as many times as is necessary for a pass.

Medium and large IT consultancy firms have had the opportunity to partner with Microsoft for many years as Certified Partners or Gold-Certified Partners. Microsoft has also made a concerted effort to grow in the small business end of town with Small Business Server 2003, but there has been no corresponding way to certify consultants. This has changed with the "Microsoft Small Business Specialist" designation.

As with all IT partner programs, there are tangible as well as intangible benefits to being a Small Business Specialist. They range from marketing collateral, such as a special logo for Small Business Specialists on business cards and stationery, to listings in Microsoft's Resource Directory, unlimited free pre-sales technical support and big discounts on software.

The Small Business Specialist title is intended to help small business IT providers establish credentials with clients. After all, if you go to your GP, you know and expect a certain level of knowledge. But in IT, the waters are murkier. As a small business owner, how do you choose an IT provider? With the Small Business Specialist title, a provider has some external verification of a basic level of knowledge.

The problem is that Microsoft hasn't done enough to promote the title to the small business community. Small business owners know about the CPA title for accountants, for example, but have no guidelines for choosing IT consultants. The concern here is the simple fact that medium and large businesses have their own in-house IT staff that at least have some idea what a "Microsoft Certified Partner" is. Small businesses, by contrast, usually have no in-house IT competence and don't know much about the difference between IT providers and their credentials.

Wayne Small, technical director at Correct Solutions Pty Ltd in Sydney, sees the biggest problem in the fact that "end users do not realise what a Small Business Specialist is, or what value they present to their business. Microsoft needs to do more to make the title mean something before the clients will give it any real value".

Stuart Applegate, general manager of Business Computer Australia in Brisbane, agrees: "SMB owners see no perceived value in Microsoft Small Business Specialists or Certified Partners". Therese McGrath, director, Small Business, Microsoft Australia, replies: "Microsoft has never gone out and promoted its Partner Program to end users, and I do not think that we plan to in the near future. However, we do, and will continue to have "find a Small Business Specialist" as the call to action in almost all of our small business campaigns and throughout our small business web sites."

DOES IT WORK?

Small thinks the program works, however: "Finally, we are getting *real* support in terms of marketing collateral and the like that allows us to better focus on clients in our sector of the market. Prior to the Small Business Specialist program, I didn't really feel that Microsoft focused much on the SMB market space."

As far as leads go, he says, "Correct Solutions have received a few leads from the Technology Assessment program and we've been able to secure a deal or two directly as a result of providing the Tech Assessment to the clients." Applegate feels that the leads provided to his business "have been very few and not very qualified."

Dean Calvert, principal consultant at Calvert Technologies in South Australia, says "the ability to become a Small Business Specialist needs to be a bit tougher — they should include a requirement to provide customer testimonials and some sort of proof of experience. Simply passing a couple of exams, to me, seems to fall quite short of being able to call yourself a 'specialist' when there's no qualification of real experience."

Perhaps Calvert sums it up best: "I think, if nothing else, it's good for your own opinion of yourself and your abilities (or rather those of your company) to attempt to become a Small Business Specialist regardless of whether or not the end users know about it. If nothing else, it shows ability to reach a goal, achieve something, to better yourself." apc

A shiny, new logo for web sites, stationery and business cards, but does anyone know what it means?

If they know where to look, potential new clients can easily find Small Business Specialists via Microsoft's site.

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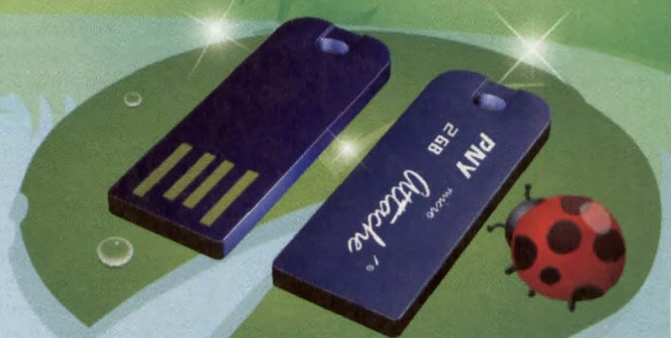

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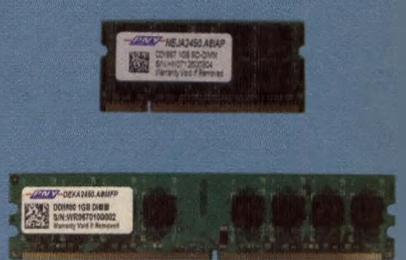

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Data forms by email

***Simon Bisson* shows you how to collect and manage emailed data with Access 2007.**

WHAT'S COVERED

- Getting information may be a high priority for you, but working with other companies can make tasks harder, and you less productive. The 2007 Office system's new collaboration tools simplify the process of collecting and managing information, letting you build forms in Access 2007, and deliver them to Outlook mail boxes – as well as automating adding returned information to your databases.

REQUIREMENTS

- **OUTLOOK 2007**
  The latest version of Microsoft's email and PIM tool.
- **ACCESS 2007**
  An old favourite, with a big overhaul.

INSIDE INFO

- Microsoft's Access 2007 development team has been blogging about the new tools and features. You'll find plenty of information about the interface and its new development tools. You can see what they're saying at **http://blogs.msdn.com/access**.

  Another good place to learn about Access 2007 is on MSDN, in its Access Developer portal. You'll find articles on porting applications from older versions of Access to Access 2007, along with plenty of other resources targeted at developers who want to get their hands dirty. Visit **http://msdn2.microsoft.com/en-us/office**.

One of the biggest problems facing businesses is collecting and managing information. There's a lot of it out there, and we end up spending far too much time typing it in, feeding the same data into many different applications. That's a significant hit to anyone's productivity, especially if the data we're adding to databases and spreadsheets is from printouts.

The problem gets worse if we need to collate information from multiple sources. It's easy to spend hours on the phone trying to track down the person you need to give you that final vital piece of information. It's not just an issue of you trying to find information; thousands of people around the world are all doing the same thing.

DATA MANAGEMENT

One option is to build a web application and email everyone a URL, then ask them to fill in the data. Of course, that also entails writing the back-end applications you'll need to actually process, manage and store the information — as well as getting the application approval to sit on public-facing web servers. Tools like Microsoft's Visual Web Developer Express can simplify the process behind building the site, and you'll find plenty of tutorials to help write the code you'll need. But that all needs time, and too often that's a luxury you just don't have.

Microsoft calls Office a productivity suite, and over the years it has gained more and more features intended to help you solve this sort of business problem. Collaboration is becoming more and more important, both inside and outside your company walls.

Tools like Outlook have made it easier to hide business workflow inside simple email messages, while SharePoint is a lot more than a simple document management platform with basic team-working tools.

Word 2007's content controls can turn a basic Word document into a form ready to be filled in, and you can also extract the XML containing the form contents from inside a Zip-formatted Word XML field, but Word's not the only tool in the 2007 Office System that can build and manage forms. InfoPath 2007 is an obvious candidate.

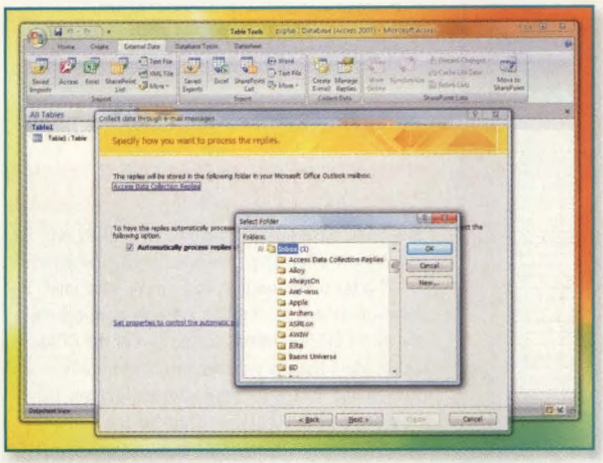
In the past you had to view its forms in InfoPath, and someone needing to fill in a form ended up having to use the same tool that created it. That made it difficult to share forms outside a business, and also pushed up Office licence costs. As a result, InfoPath didn't have the success it deserved.

Things are different with InfoPath 2007, and its main deficiency has been overcome, so that

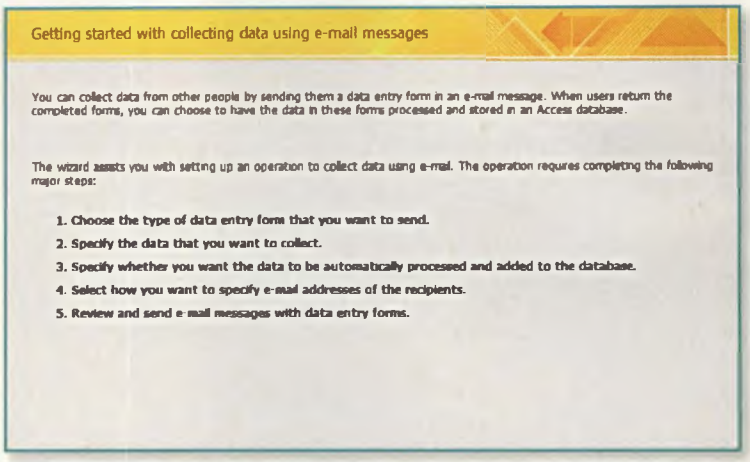
HANDY TIPS

Access 2007 doesn't support the entire range of SQL data types – you'll need something like SQL Server Express if you want that sort of power on your desktop. The basic design tools let you use a few basic data types, but if you delve into Access development tools and its SQL query builder, you'll find that it supports 13 primary data types. Visit http://snipurl.com/1au5e for a full list of the data types as well as their descriptions.

You'll need to build an Access database first, so click on the Blank Database icon to start creating a new, completely empty, database.



Email responses with filled-out forms are automatically processed. Choose how often, and if there should be a response cut-off date.


Getting started with collecting data using e-mail messages
You can collect data from other people by sending them a data entry form in an e-mail message. When users return the completed forms, you can choose to have the data in these forms processed and stored in an Access database.
The wizard assists you with setting up an operation to collect data using e-mail. The operation requires completing the following major steps:
1. Choose the type of data entry form that you want to send.
2. Specify the data that you want to collect.
3. Specify whether you want the data to be automatically processed and added to the database.
4. Select how you want to specify e-mail addresses of the recipients.
5. Review and send e-mail messages with data entry forms.

Need to build an emailable form in Access? The program provides a wizard that will walk you through every step of the process.

ACCESS' CONFLICT RESOLUTION TOOLS HELP KEEP DATA IN SYNC, EVEN WHEN IT'S BEEN WORKED ON BY A COLLEAGUE

InfoPath forms can be rendered in both Internet Explorer and Outlook 2007. Forms can be hosted by SharePoint, or can be sent by email. You'll still have to write code to deal with responses, even if they are stored in SharePoint lists or delivered to web services.

SharePoint is also able to manage forms, using SharePoint Designer 2007 to create workflows. You can use the tool formerly known as FrontPage to add the HTML and Web Parts you need to a page, building forms quickly and easily. You will still need to write some code, but programming is simple, and with SharePoint you can quickly assign filling the form in as a task to appropriate team members, and share the link to the form around the business. It's not so easy to share a SharePoint form with third parties — it's normally used as an internal collaboration tool, and giving external users access isn't often possible.

ACCESS SOLUTION

There is an alternative approach that will work both inside and outside a business — an old favourite that's been given an unexpected rejuvenation in Office 2007: Access 2007.

The 2007 Office system has added many new features to familiar tools, and while the new ribbon user interface makes it easier to find Office's myriad options, some of the more useful features won't be obvious. Access 2007 is one tool that's had an extensive makeover. Despite many changes, underneath the covers it's still the familiar database design, development and management tool. There's also a selection of new tools that makes it easier to use Access as a tool for ad hoc information gathering, and for basic collaborative working.

Access 2007 introduces a new file format in the shape of ACCDB, but your data can also be handled by SharePoint Server 2007 (and SharePoint Services 3). You can add a database to SharePoint by using the External Data tab on the ribbon. Click on the Move to SharePoint button to launch a wizard that handles uploading an entire database — front end and all — to a SharePoint Server. All you need to do is choose where it will be uploaded, and how it will be used. The data is stored as SharePoint lists and tables, with a web-based front end that can be edited using SharePoint Designer 2007. One thing to note: you won't have all the client-side features.

Once the database has been added to a SharePoint library it can be worked on within a browser, or opened by a local copy of Access. This last approach works well for mobile users, as it creates a local copy on your desktop PC. Any changes made are stored locally and published back to the master copy on your SharePoint system. You can even work offline, synchronising changes with the server later. Access' conflict resolution tools help keep data in sync, even when it's been worked on by a colleague.

You can use this approach to start collecting and sharing information with colleagues, but it

SPOTLIGHT ON... ACCESS 2007 TEMPLATES

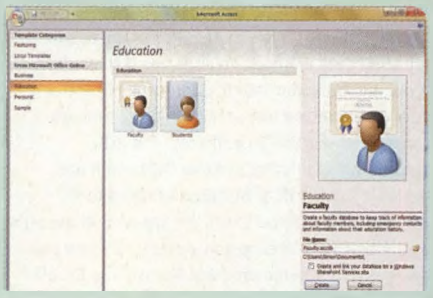
One of Access' main competitors, Filemaker Pro comes with a selection of pre-built databases designed to make it easy to get started.

Access 2007 does much the same with a selection of templates: online you get access to the Office Online web site, where Microsoft intends to regularly publish new templates; and offline, you get several templates covering sections of Access' main markets — small businesses and education.

The bundled templates in Access include databases that help you track and control business assets — something that's often handled in Excel spreadsheets. With these you can manage an events calendar and handle basic project planning.

Schools and colleges will receive templates designed to help manage information about staff members and students.

Templates like these can be customised (and also de-Americanised) for your own specific business or staff needs; it's an approach that could save you time and money.



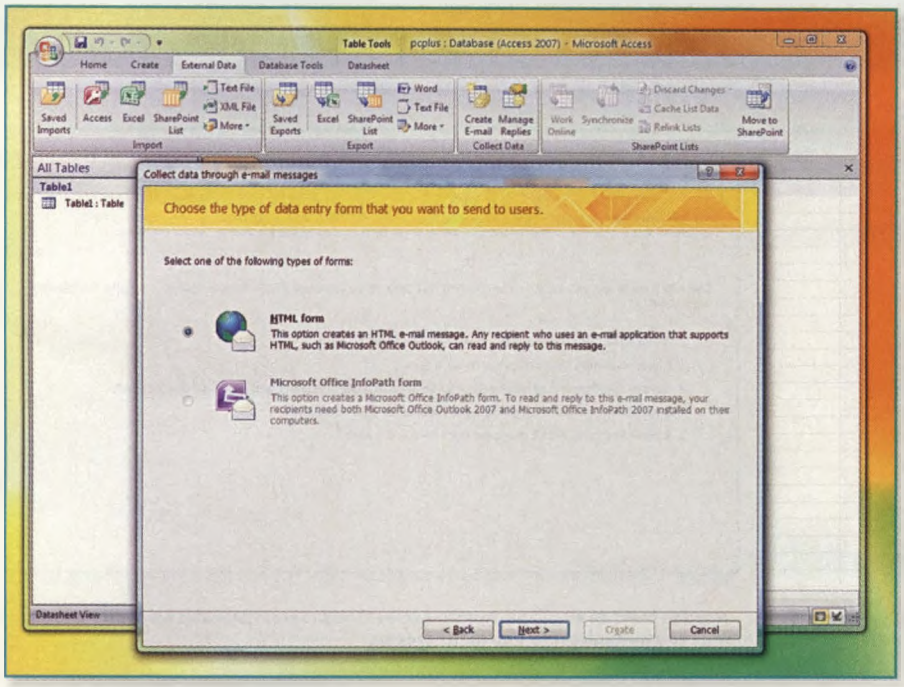


Table Tools
pcplus : Database (Access 2007) - Microsoft Access
Collect data through e-mail messages
Choose the type of data entry form that you want to send to users.
Select one of the following types of forms:
HTML form
This option creates an HTML e-mail message. Any recipient who uses an e-mail application that supports HTML, such as Microsoft Office Outlook, can read and reply to this message.
Microsoft Office InfoPath form
This option creates a Microsoft Office InfoPath form. To read and reply to this e-mail message, your recipients need both Microsoft Office Outlook 2007 and Microsoft Office InfoPath 2007 installed on their computers.
< Back
Next >
Create
Cancel

Access 2007 can build two types of form: HTML forms and InfoPath forms (which will need the 2007 versions of both Outlook and InfoPath).

HANDY TIP

Most database forms are ugly. Office 2007 has much more of an emphasis on design, and Access 2007 adds more features to help you give your forms a makeover. AutoFormat tools now include the same design themes as the rest of the Office suite, while the ribbon's two form layout tabs – Design and Arrange – group design features to help you find the tool you're looking for. Add a control from the Design tab, and then position it using the tools in the Arrange tab. The result is a cleaner, easier to navigate database, with easy-to-read (and use) forms and queries.

still requires users to go to a page on a site and use a web-based version of a database. If the people you need to get data from don't have much time, and you want results sooner rather than later, you can use Access 2007 to create a form that can be filled out in Outlook. This can then be mailed back to you, and Access will automatically extract the information from a specially configured Outlook mailbox — adding it to your database.

Start by building an Access database. From the new Getting Started screen — which is similar to that used by Visual Studio 2005 — create a new Blank Database. You'll see that Access now comes with a selection of database templates to get you started, and you can download more from the Office Online web site. Select Blank Database, give it a name, then click Create.

We'll build a simple database that can be used to capture sales information. In the Table design view, add some columns. Make sure you give your columns the appropriate data types and make sure that any unique types are defined — so you don't end up with duplicate order numbers. Once you've built your table, switch from the Datasheet tab of the ribbon to External Data and then click on Create Email. This will launch a wizard that will configure Outlook for data collection and help you design your email form.

SIT BACK, AND ACCESS 2007 WILL DO ALL THE WORK FOR YOU. NOW THAT'S PRODUCTIVITY.

DESIGNING A FORM

If you've got InfoPath 2007, you can design an XML form that can be used by anyone with both Outlook and InfoPath on their PC. If you haven't, don't worry — you can build an HTML form that'll work with any mail client that can use HTML.

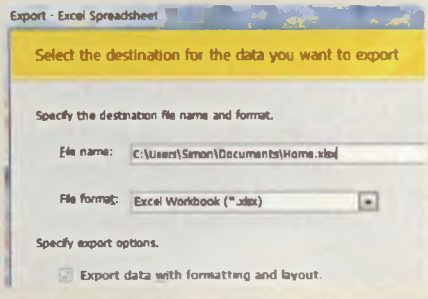
Select the fields in the form and choose any labels you want to add. Replies to the message will be filtered into a specific mailbox. The default is Access Data Collection Replies. You can also set up rules for processing replies — including a cut-off date beyond which messages will be discarded. Messages can be sent using a list of addresses in the database, or using Outlook's standard address tools. You can then fill out some template text, explaining the contents of the form, which will be used to build the contents of your email messages.

Once you've added your boilerplate, click the Create button to see the Outlook message with the embedded form. Access gives your users plenty of information about how they need to fill in and submit the form — all in a well-formatted message. Fill in the email addresses, click Send, and wait for the replies to come in. Access will automatically process the information and update your database, making sure you have all the information you're expecting. Sit back, and Access 2007 will do all the work for you. Now that's productivity. apc

DO THIS... EXPORT ACCESS DATA

Access 2007 makes a reasonable database a lot better. However, there's one piece of the jigsaw missing: data analysis. You can use it to capture, store and organise – even query and explore – your data, but you can't really use it to analyse the information you've gathered. The 2007 incarnation of another familiar Office tool has added a whole raft of business analysis tools though, making Excel 2007 the basis of Microsoft's entire business intelligence strategy. So how can you get your information from Access into Excel?

Use the ribbon to open the External Data tab. In the Export section you'll see an Excel icon. Select some of the data – perhaps a table or a query result – and then click on this to launch Access' Excel export wizard. The results are saved as an Excel file, and you can save the export wizard so you can repeat the export any time the data changes. Then it's time to get to grips with Excel 2007's new analysis features.


Export - Excel Spreadsheet
Select the destination for the data you want to export
Specify the destination file name and format.
File name:
C:\Users\Simon\Documents\Home.xlsx
File format:
Excel Workbook (*.xlsx)
Specify export options.
Export data with formatting and layout.

Export a table to Excel and analyse it with a selection of tools.

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An Office alternative

Don't be fooled by the low price of StarOffice — it can be just as good as Microsoft's Office system, says *Martin Cooper*.

WHAT'S COVERED

- **GETTING STARTED WITH AN OFFICE ALTERNATIVE**
  In this tutorial we'll look at some key features of StarOffice and see how to use them to ensure your documents look and work as well as they can. We'll also discover ways in which you can share and circulate documents you've created, so that the widest number of people can enjoy them.

REQUIREMENTS

- **STAROFFICE**
  A copy of StarOffice 8, which you'll find at **www.sun.com/products-n-solutions/edu/solutions/staroffice.html#Education**.
- **MID-RANGE PC**
  StarOffice isn't as demanding as MS Office, so if your PC is old or underpowered, give it a try. You might be surprised by the results.

HANDY TIP

Microsoft Office has an Equation Editor that lets you create and insert equations and formulas into your reports and presentations. An equivalent called Math can be found in StarOffice and is also capable of creating equations and formulas. To find StarOffice's comparable tool, click Insert > Object > Formula.

Star Office is a commercial product, but if you are a student, researcher, staff, or faculty member you can download StarOffice 8 for free. Get details of the licensing and download address at **www.sun.com/products-n-solutions/edu/solutions/staroffice.html#Education**. More information is at **www.sun.com/software/star/staroffice/index.jsp**.

When you've installed the suite you'll find all the regular office productivity tools are ready for you to use: there's a word processor called Writer; Calc for spreadsheets; a PowerPoint-like presentation program called Impress; Draw for creating graphics; and Base, which you've probably guessed is a database program. Despite its comparatively low cost (US$80 for the Small/Home Office version), StarOffice is a useful collection of programs and tools.

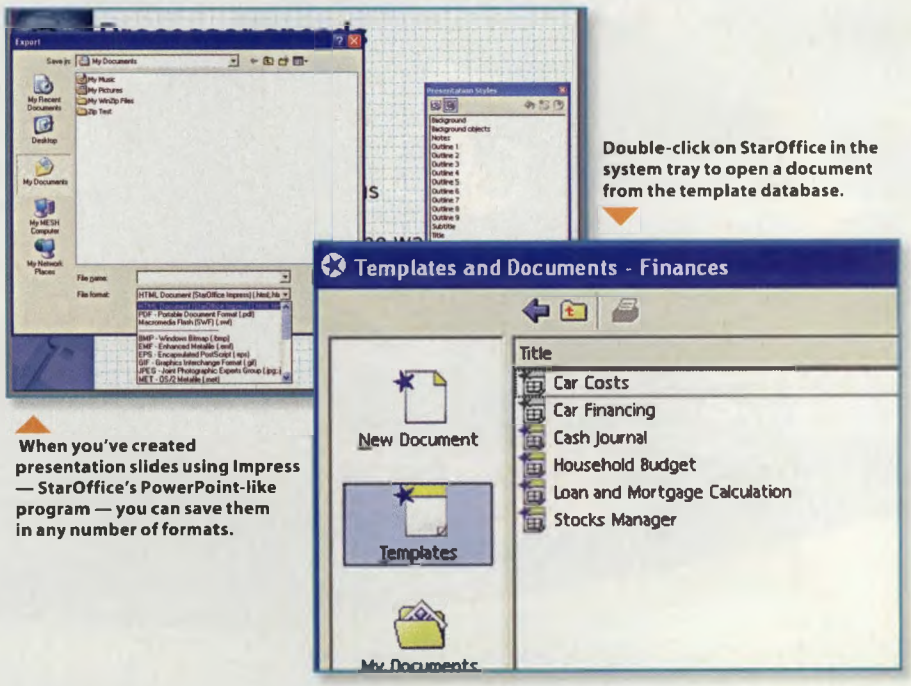
COMPATIBILITY

Given that most people and organisations have standardised around Microsoft's Office, the first thing that will worry most users when thinking about an alternative work suite is compatibility. With StarOffice 8, you shouldn't worry too much. StarOffice's key applications are generally compatible with their Microsoft counterparts.

This is true of older versions of Office, from 97 right up to 2003. Problems arise when you start trying to load files that have been created in Office 2003's version of XLM and Office 2007. This is because StarOffice 8 doesn't naturally support Microsoft's versions of XML. For that reason you're best advised to either save files out as plain text documents or in an older Microsoft application format, if you intend supplying them to a friend who uses version 7 of StarOffice.

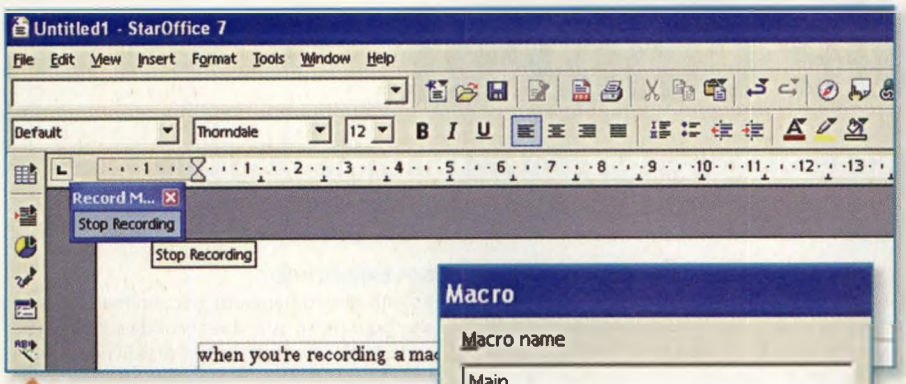
You can also stave off many common pitfalls by making some clever selections during the StarOffice install. To start, follow all of StarOffice's usual installation prompts until you get to the Select Installation Type dialog box. When this appears select the Custom Installation option. This should take you to a dialog box from where you can pick various modules. The key here is to ensure that they're all selected by clicking the icon next to each module's name. Remember to expand each entry to show its full list. This slightly long-winded procedure will ensure that essential conversion utilities and other key tools are installed along with key apps.

Finally, when you've installed StarOffice you'll notice a new icon in the system tray. This is the StarOffice Quick Starter, a small program that's designed to reduce the amount of time StarOffice applications take to load. In that respect it's very similar to Microsoft Office, which loads libraries while Windows is starting up. It may use a small amount of system memory and make your system tray look more cluttered, but it's worth it.



When you've created presentation slides using Impress — StarOffice's PowerPoint-like program — you can save them in any number of formats.

Double-click on StarOffice in the system tray to open a document from the template database.



When you're recording a macro, you'll notice that a small dialog will appear on the screen. As it instructs, you can click to stop recording.

Creating macros is a quick way of automating otherwise laborious and complex tasks with a few clicks.

YOU CAN ALSO STAVE OFF MANY COMMON PITFALLS WITH SOME CLEVER SELECTIONS DURING THE STAROFFICE INSTALL

KEY FEATURES

Beyond all the basics that you should expect from any office system worth its salt, StarOffice has some indispensable extra tools and features. First, you can export presentations to the Macromedia Flash format letting you display presentations you've created in Impress in almost any web browser. You can also export StarOffice Draw diagrams and Impress presentations as graphics in the Macromedia flash format (.SWF). To find this option in the Impress presentation tool click File > Export and then select the file format you're after. You can also export directly to PDF. You'll find options to save presentation slides as HTML pages or as graphic files, in formats from .JPG, and .BMP to Encapsulated Post Script (.EPS) files.

If you need to save time when doing repetitive tasks then you should explore StarOffice's Macro recorder. The system automates laborious jobs, which usually take many keystrokes and clicks, by recording you doing the job once and then letting you play the sequence back with a single click. To see how this feature works we'll begin by recording a macro — at its most basic, this can be just a set of keystrokes. We'll create a styled signature that can be dropped in at the end of a letter, saving you the job of entering the same text and doing the same text formatting every time you write some correspondence.

RECORDING MACROS

Begin by opening the document in which you would like to create the macro. Next, open the recording tool. Do this by clicking Tools > Macros > Record Macro. Now enter the signature — for example, let's say Sir John Harvey Posslethwaite Jones KBE DSO. As our fictitious signatory is a finicky chap, let's assume he likes his name emboldened, underlined and italicised at the end of his letter. He also requires five carriage returns in which to hand write his signature in pen.

So, move the cursor back to the beginning of the name you've just entered. Now, press Enter five times to insert the space in which a signature can be scribbled. Next, highlight the name you've just entered. Click the "B" icon for bold, "U" for underline and finally "I" for italic. When you've completed the essential text-formatting jobs, click Stop Recording Macro.

Now, give the macro a name. In our case lets use "Signature" – it's usually a good idea to give your macros names that relate to their function as it makes finding them easier in the future. Now, when you come to the end of a letter all you need do is click Tool > Macro and then select the procedure you want to run. In our case, click "signature" and — hey presto — the fully formatted signature appears.

Of course, clicking through all these menus is time-consuming, so let's assign a macro to a key. This time, click Tools > Macros > Macro (not record as we did last time). Now click the macro you would like to assign from the list of existing macros and click Assign, which is a button that will have appeared towards the right-hand side of the menu pane. Now look under the list headed Function and select the macro you would like to assign. Select it and click Assign and a window called Configuration should appear with the Keyboard tab highlighted. Now press Alt+Ctrl+V and a new list headed Shortcut Keys should appear on the screen. If you're happy with the shortcut Alt+Ctrl+V, then click Modify and OK to accept it. If you press these key combinations together back in your document the macro will be activated and the signature will be dropped into its rightful place.

The scope of macros is infinite. Depending upon your business application you could create one that formats a page, sets margins, headers, footers, preferred fonts and then places your company logo. If you use lots of standard sized tables, again create a macro once, assign it to a key and in a second you can have a page element ready and working, which would otherwise have taken minutes to create manually.

When you've created your document, you'll naturally want to share it with as many people as possible. The best way of doing this is, of course, to save it as a PDF. StarOffice makes this incredibly easy. When you've finished the document you're working on just click File > Export as PDF, give your document a name and click Save. Job done.

HANDY TIP

Although it is possible to add passwords to documents you create in StarOffice (click File > Save As and mark the Save With Password box), you can't import documents from Microsoft Word that have passwords. The reason this isn't possible is to preserve security – StarOffice views importing password-protected documents as an attempted violation.

DO THIS... CREATE A 3D CHART

One of the best and most dramatic ways that you can show off data you've slavishly created is to generate a swanky 3D chart. If you're used to Microsoft's Excel, then you'll know this is a simple job. Thankfully, StarOffice's Calc spreadsheet is no more difficult.

To begin, load up the worksheet that holds the data you want turn into a graph. Now enter the data you want to chart along with its headings – just as you would in Excel. Now click Insert and then select Chart. You'll be presented with a window that shows the data range. Assuming you're happy with this area of your worksheet, click Next.

Now you can choose the type of chart to insert. You'll find a good selection, ranging from basic 2D pie charts right up to complex scatter graphs and, of course, the 3D charts we're after. To find these, scroll down. To get a preview of how your data will look when displayed using a certain type of graph, click the associated icon and you'll be presented with a thumbnail view. When you're happy, click Create.

PC-readable content

***Karl Hodge* shows how to make your web page content machine-readable with microformats.**

WHAT'S COVERED

- We look at microformats: an open standard that uses XHTML and CSS to mark up your content. Using address book entries, calendar events and reviews as examples, we show you how to manually add them to your pages with pointers to key resources. We round off with a summary of the process and talk about some of the tools that can make deploying microformats easier.

At their most basic, microformats provide web developers with standard ways of marking up specific types of data. For example, if you want to include a company address in your web page, you can use the hCard microformat. Here's an address marked up using the hCard standard, a microformat for displaying address book data:

```
<div class="vcard">
<span class="fn">Karl Hodge</ span>
<div class="org">Spodgod</div> <div class="adr">
<div class="street-address">A Street</div>
<span class="locality">Anytown,</ span>
<span class="postal-code">WEB 123,</span>
<span class="country-name">Australia</ span>
</div>
</div
```

The "standard" part of this code is in the CSS classes we've used. The hCard microformat defines a list CSS of properties for types of data. By using a pre-determined set of properties to describe the data, the code becomes portable, reusable and machine-readable.

You may notice that even though we've called this microformat "hCard", our opening class is labelled "vcard". That's because the hCard format is based on vCard, a widely used open standard for sharing address book data. Where feasible, microformats are based on existing standards. The goal behind them is to achieve the machine readability of web data as soon as possible, rather than invent new ways of formatting content.

GOVERNING BODY

As with all web standards, microformat standards are coordinated by a series of bodies. While the code itself is overseen by the World Wide Web Consortium, which is responsible for HTML recommendations, the microformat definitions are the province of **http://microformats.org**, whose aim it is to translate existing standards into microformats expressed in HTML and CSS markup.

In this spirit, the microformat for calendar data is based on the existing iCalendar format used by Mozilla Calendar, Apple's iCal and Microsoft Outlook 2007. The microformat is called hCalendar ("h" standing for hypertext). Other formats include hReview for reviews, hResume for CVs, and rel-tag for folksonomy tagging. Like hCard, each format definition describes a set of properties for marking up specific types of content. We'll look at hReview as an example.

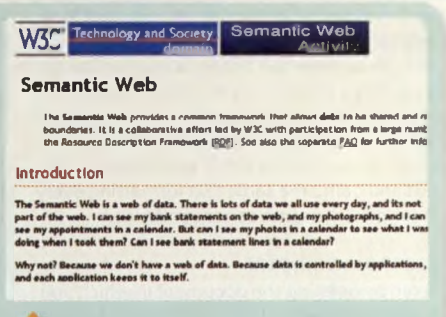
Let's say you have a simple review of a DVD in your blog. In the review you give the movie a rating, describe it and give it a title. In plain markup that may look something like this:

```
<h2>Ginger Snaps Back</h2>
Dec 19 2006 by Karl Hodge<br />
<p>This horror movie sequel is a superior werewolf thriller set in 19th Century Canada. Go see it.</p>
<p>Five Stars</p>
```

The hReview microformat gives you a number of standard properties with which to mark up your code, and it also incorporates properties from the hCard standard. Here's the same block with hReview properties.

SPOTLIGHT ON... THE SEMANTIC WEB

Tim Berners-Lee is the bright spark who invented the World Wide Web. Now he's the leading light behind a series of initiatives to make the code we create for web pages more easily readable by machines and humans. These standards and recommendations have been grouped under the title "Semantic Web", a concept that Berners-Lee introduced in his book *Weaving the Web* (ISBN 0752820907). An influential and powerful concept, the *Semantic Web* is a simple idea with many solutions. Its execution begins at markup level, with the separation of content and layout made possible through the use of CSS. Commonly encountered advice for designers who wish to create accessible pages is that their content should be readable and should make sense even without the styling. Microformats are part of this continuum, providing standard ways to mark up specific content. There are other initiatives, including RDF (Resource Description Framework), an official W3C-endorsed XML-based method of identifying resources in a similar way to microformats. You may have encountered RDF as part of the original, widely used RSS spec. Though RSS 2.0 stands for "Really Simple Syndication", the acronym was originally RDF Site Summary. Both technologies provide machine-readable descriptions of web pages. Go to www.w3.org/2001/sw to discover more about the semantic web.

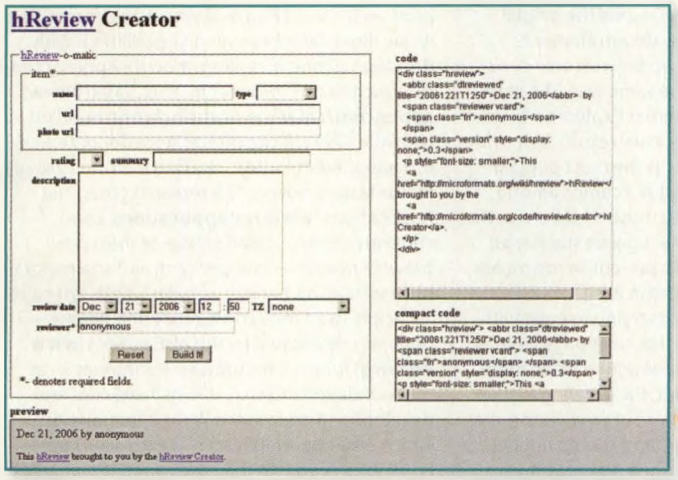

W3C
Technology and Society
Semantic Web
Semantic Web
Introduction
The Semantic Web is a web of data. There is lots of data we all use every day, and its not part of the web. I can see my bank statements on the web, and my photographs, and I can see my appointments in a calendar. But can I see my photos in a calendar to see what I was doing when I took them? Can I see bank statement lines in a calendar?
Why not? Because we don't have a web of data. Because data is controlled by applications, and each application keeps it to itself.

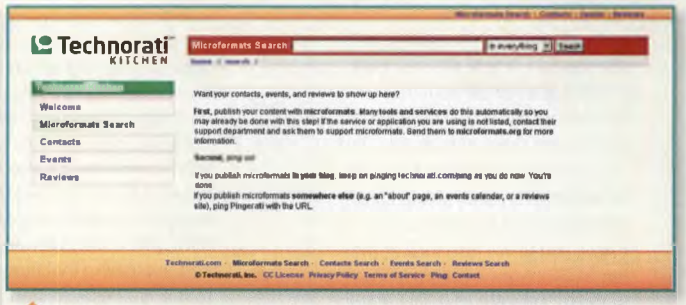
A collection of technologies, the Semantic Web seeks to make content machine-readable.

DO THIS... USE AUTHORING TOOLS

As we've discovered, creating microformats isn't too challenging. You're using standard markup with XHTML and CSS after all. Still, it's quite fiddly as every element must be marked up with its own class. It's unusual to do that for blocks of text and can be time-consuming. We mentioned some online services you can try – there are also plug-ins available for your favourite web authoring tools.

Dreamweaver has the Dreamweaver Microformats Extension, which you can find at www.webstandards.org/action/dwtf/microformats. Download the beta and install it using Macromedia Extension Manager. This easy-to-use plug-in adds a series of objects to your Insert menu. It supports hCalendar, hCard, rel-license, rel-tag and XFN microformats. Insert an object and you'll be presented with a dialog box, similar to the forms we encountered online (that allow you to enter the content you want). The extension formats the data for you and places it in your code. Fans of open source web authoring tool Nvu have some microformat support built directly into the application. The tool supports the XFN microformat (XHTML Friends Network) in its hyperlink dialog straight out of the box.





Make your microformat content searchable by submitting your blog to Technorati — follow the instructions at http://kitchen.technorati.com/search.

There are many resources to be found on the web — check out the collection of microformat creation tools at www.microformats.org/code.

> THIS STRICT LABELLING OF CONTENT MAKES THE CODE EASIER TO READ, IT ALSO MAKES IT EASIER TO WRITE

```
<div class="hreview">
<div class="item">
<span class="fn">Ginger Snaps Back</span>
</div>
<abbr class="dtreviewed">Dec 19, 2006</abbr>
by
<span class="reviewer vcard">
<span class="fn">Karl Hodge</ span>
</span>
<div class="description">
This horror movie sequel is a superior werewolf
thriller set in 19th Century Canada. Go see it.
<span class="rating">Five Stars</ span>
</div>
</div>
```

In this block of code, the entire review is encapsulated with an "hreview" class, followed by an "item" block that contains the title of the reviewed DVD. In the hReview microformat these are the only required properties. The remaining elements are optional, but are all labelled according to the same strict specifications. The class "dtreviewed" is always used to mark up the review date of an item, and "rating" is always used to indicate the review score out of five. As you can see, the classification can become quite complex.

ONLINE TOOLS

This strict labelling of content makes the code easier to read programmatically, it also makes it easier to write. There are online forms-based tools available that automatically generate microformatted content. We've already tackled address entries and reviews, so we'll use hCalendar for this example. The online tool we'll use is available from **www.microformats.org/code** that includes tools for creating address cards and reviewing entries — and it adds support for the XFN social networking format.

Follow the link for hCalendar creator. The form you're presented with is similar to the type of dialog you might find in any scheduling or events manager. The Ajax-powered form has entry fields for the name of an event, its location, URL, start and end date, time zone, description and tags. As you populate the fields, the code on the right updates automatically. It's very similar to the microformat code we've already encountered. The property "dtstart", for example, is very similar to the "dtreviewed" property in the hReview format. The title property is automatically derived from the date and time that you enter.

But you're not stuck with this layout — and that's the beauty of using microformats. Because they're CSS-based, you can define any style for the defined properties you like the most, entirely separately from the content itself. For example, let's say we have a simple address card that's marked up like this:

```
<div class="vcard">
<span class="fn">Karl Hodge</
span>
<div class="org">Spodgod</div>
<a class="email" href="mailto:
khodge@">khodge@spodgod.
com</a>
</div>
```

We can mark up the block:

```
<style type="text/css">
.vcard {
width: 200px;
border: solid;
padding: 5px;
}
</style>
```

Microformats let you provide all the information, as well as your own choice of design.

Surviving the browser wars

Do you see what I see? *Richard Hill* reveals the Mac browsers that you should be testing your pages on.

WHAT'S COVERED

- As the Mac's market share grows, its selection of web browsers are becoming more relevant to anyone publishing a web site. Here, we explore the range of browsers that are currently available for Mac OS X, helping you assess which ones you should install and test your pages under. We also look at the hidden web development features in Safari. New releases include a tool for productivity geeks and an aide for smoother mouse scrolling.

The diversity of approaches among web browsers is the bane of any conscientious web designer's existence. Despite the official standards that define how design elements should be rendered, no two browsers render a given page in precisely the same way. The chief deviator is Microsoft's Internet Explorer, which has long reflected only a casual relationship with W3C standards. IE's status as the most popular browser has led to two distinct camps among designers and developers: those who believe that Microsoft is the chief sinner against standards; and those who feel that its pre-eminence means that IE is a de facto standard in itself.

Suggesting to designers trying to cope with this that they also ensure that their pages render appropriately on Macs is enough to make them crumple in resignation. But, the growing market share of the Mac means more of your visitors are using Mac-based browsers and should not be disregarded. Paying $950 for a new Mac mini gives you a Core Duo-based test station for Mac browsers that — if you insist — can also run Windows when required, to give you the maximum return on your investment. All you need do then is start up Mac OS X Tiger and install the browsers listed below; as with Windows, your choice of browsers divides into products based on specific rendering engines. You'll also get access to some useful on-the-fly web site development tools, as we explain in the "Access secret Safari tools" box on the next page.

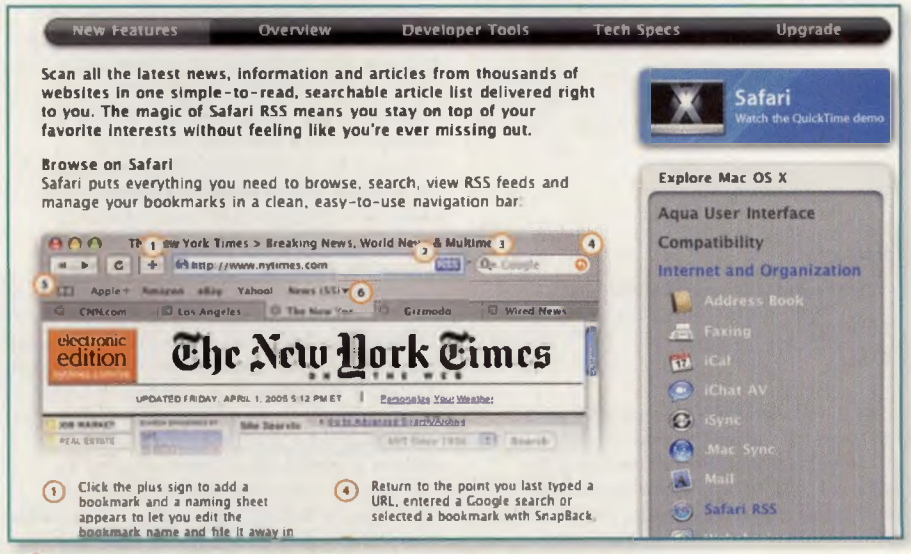
WEBKIT BROWSERS

Just as it was on Windows, IE was once the leading browser for Mac OS; a deal with Apple meant that it was the default browser on installation. With development on IE stalling, though, Apple opted to launch its own browser in 2003, Safari (**www.apple.com/safari**), now the only one bundled with Mac OS X. Microsoft has since discontinued IE development for Mac, making it an increasingly minor-league option. The research group Net Applications (**www.netapplications.com**) currently assesses Safari's share of the overall browser market as four per cent, and so a minor but essential part of any web designer's test suite.

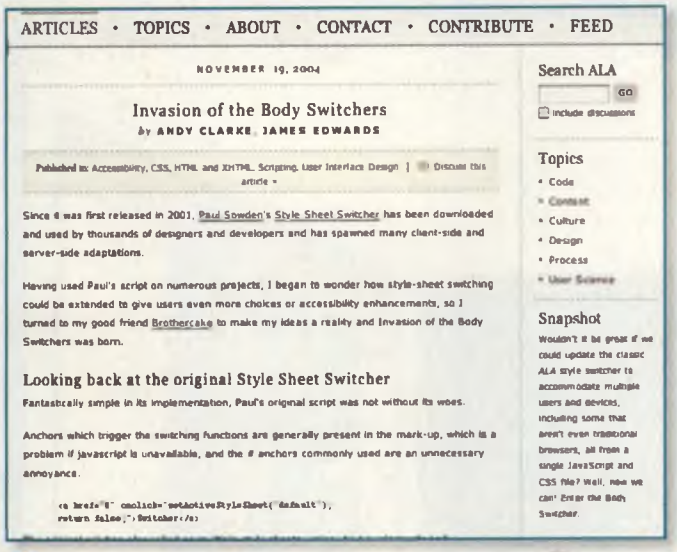
Apple used the KHTML rendering engine — originally developed by the KDE project (**www.kde.org**) for the Unix browser Konqueror — as the foundation of Safari. It joins JavaScript and development code in the WebKit framework, which other developers can use to incorporate HTML browsing into their own apps. It's regarded

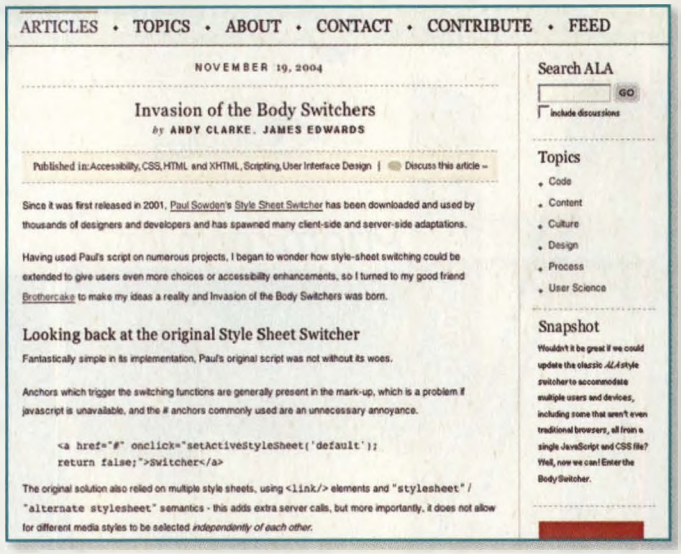
HANDY TIP

Because Apple's open source WebKit source code is fed back into the KHTML development project, it's possible to port WebKit to other platforms. It's already used for a browser on Nokia S60 smartphones, and a WebKit-based browser for Windows called Swift (*http://try.swift.ws*) is now in the early stages of development.


New Features
Overview
Developer Tools
Tech Specs
Upgrade
Scan all the latest news, information and articles from thousands of websites in one simple-to-read, searchable article list delivered right to you. The magic of Safari RSS means you stay on top of your favorite interests without feeling like you're ever missing out.
Browse on Safari
Safari puts everything you need to browse, search, view RSS feeds and manage your bookmarks in a clean, easy-to-use navigation bar.
Safari
Watch the QuickTime demo
Explore Mac OS X
Aqua User Interface
Compatibility
Internet and Organization
Address Book
Faxing
iCal
iChat AV
iSync
Mac Sync
Mail
Safari RSS
http://www.nytimes.com
electronic edition
The New York Times
UPDATED FRIDAY, APRIL 1, 2005 5:12 PM ET
1 Click the plus sign to add a bookmark and a naming sheet appears to let you edit the bookmark name and file it away in
4 Return to the point you last typed a URL, entered a Google search or selected a bookmark with SnapBack.

With a market share of around four per cent, Safari quickly is establishing itself as a browser that belongs in your web site test suite.


ARTICLES • TOPICS • ABOUT • CONTACT • CONTRIBUTE • FEED
NOVEMBER 19, 2004
Invasion of the Body Switchers
by ANDY CLARKE, JAMES EDWARDS
Search ALA
GO
include discussions
Topics
Code
Content
Culture
Design
Process
User Science
Snapshot
Since it was first released in 2001, Paul Sowden's Style Sheet Switcher has been downloaded and used by thousands of designers and developers and has spawned many client-side and server-side adaptations.
Having used Paul's script on numerous projects, I began to wonder how style-sheet switching could be extended to give users even more choices or accessibility enhancements, so I turned to my good friend Brothercake to make my ideas a reality and Invasion of the Body Switchers was born.
Looking back at the original Style Sheet Switcher
Fantastically simple in its implementation, Paul's original script was not without its woes.
Anchors which trigger the switching functions are generally present in the mark-up, which is a problem if javascript is unavailable, and the # anchors commonly used are an unnecessary annoyance.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Anchors which trigger the switching functions are generally present in the mark-up, which is a problem if javascript is unavailable, and the # anchors commonly used are an unnecessary annoyance.
The original solution also relied on multiple style sheets, using <link/> elements and "stylesheet" / "alternate stylesheet" semantics - this adds extra server calls, but more importantly, it does not allow for different media styles to be selected independently of each other.

On this page from *www.alistapart.com*, Safari (shown here on the left) correctly renders details like the bullet points in the right sidebar. Firefox (shown in the right-hand screenshot) uses noticeably smaller text.

FIREFOX IS FINDING A DEVOTED AUDIENCE ON THE MAC THANKS TO ITS OPEN SOURCE ROOTS AND EXTENSIONS

as a highly standards-compliant renderer and receives particular praise for its text presentation. A recent blog post by the noted web designer and standards advocate Jeffrey Zeldman (**http://alistapart.zeldman.com/2006/11/27/safari-beats-firefox/**) highlights the difference in small details on pages presented by Safari and Firefox for Mac, such as italics and the treatment of hyphens, that gives Safari a clear edge.

WebKit is also the rendering engine behind OmniWeb (**www.omnigroup.com**), a US$14.95 browser that features innovations such as page thumbnails in tabs to enable rapid selection of sites and individual preferences for each site you visit, and Shiira (**http://shiira.jp/en.php**), an open source browser that lets you adjust the order of tabs and provides visual effects such as book-like page-turning as you navigate.

GECKO BROWSERS

Firefox is finding a devoted audience on the Mac as well as Windows, thanks to its open source roots and the ready availability of extensions. People using Firefox extensions as part of their web development workflow will be pleased to note that most extensions work smoothly in Mac OS X. The browser uses the Gecko rendering engine on both OSs, but that doesn't mean that pages appear the same on both, as the Zeldman blog entry mentioned earlier illustrates. Its output can be unpredictable on older web pages that use the Transitional or Frameset doc-type declaration. If type rendering is critical for your site design, or you use complex table-based layouts, you should test pages on both the Mac and the Windows releases of Firefox.

Created by Netscape and now under the auspices of the Mozilla Foundation (**www.mozilla.org**), Gecko offers strong standards compliance, but it's currently a little slower to render than KTML or WebKit. Its long history means that it's used in several other browsers for the Mac. Netscape is one, although newer versions have not been developed for Mac OS X. The recent release, Flock, is another, which integrates social bookmarking tools for Flickr, Technorati and other popular services. But the most interesting Mac Gecko release is Camino (**www.caminobrowser.org**), which plays a central role in Mac browser history.

It started life at Netscape under the name Chimera, a 2001 attempt to implement Gecko in the then-new Cocoa development framework for Mac OS X. The initial team was soon joined by Dave Hyatt, a co-creator of Firefox. Early releases of Chimera set the pace for page-rendering speeds, and Hyatt's work saw him hired at Apple to work on Safari; he remains a pivotal developer.

OTHER SYSTEMS

Two other rendering systems are available for Mac OS X. Presto is the engine behind Opera (**www.opera.com**). The free browser's presence on the Mac is no surprise given the wide variety of platforms Opera Software supports, but its impact has been much lower than on Windows. Finally, there's iCab, available from **www.icab.de** as a free cut-down edition or a US$29 Pro edition. Its standards-compliance has improved hugely since its initial release, but small market share means it isn't an essential part of your Mac browser test suite.

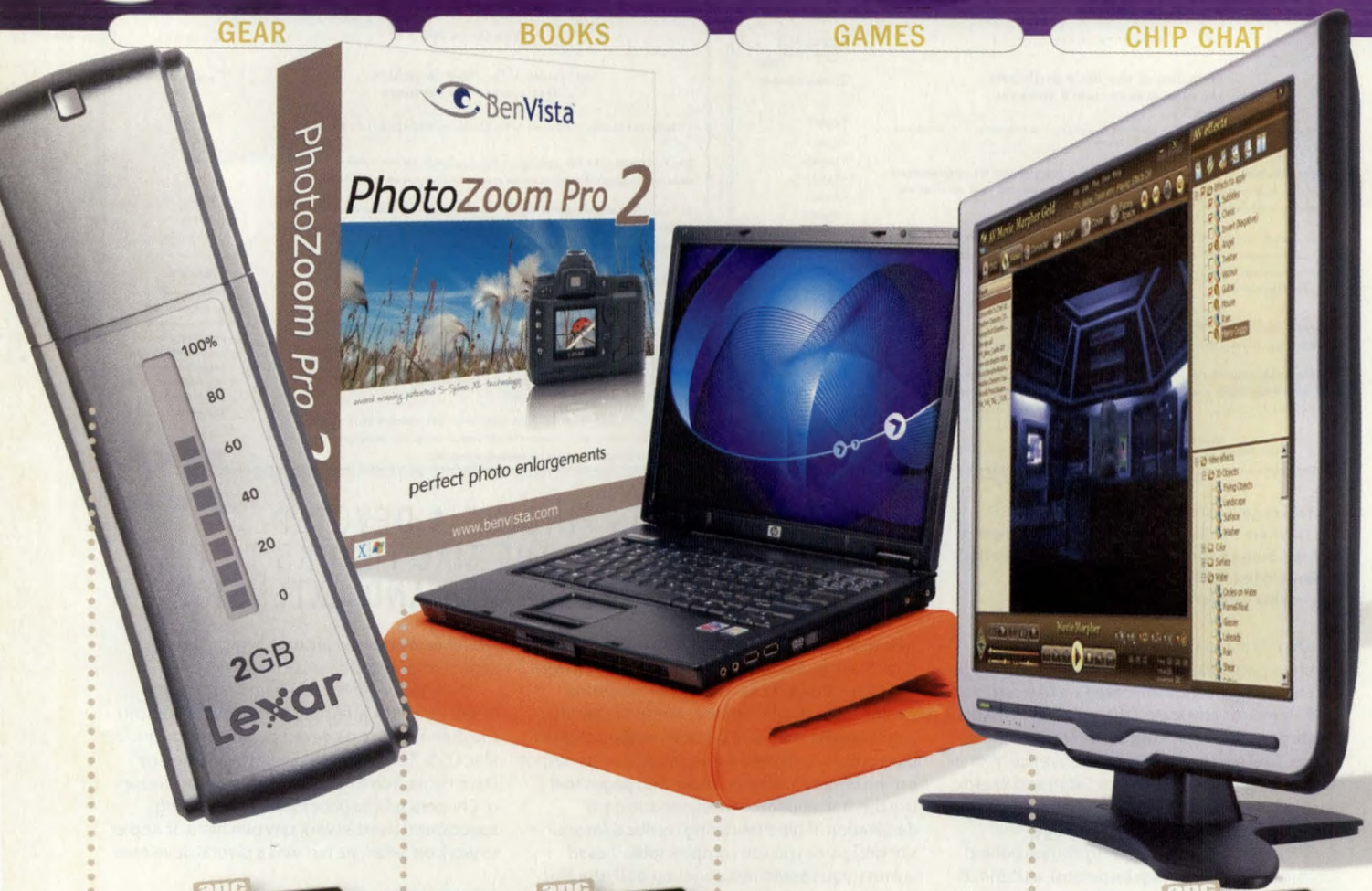
DO THIS... ACCESS SECRET SAFARI TOOLS

Safari contains a set of features designed to help web designers and developers as they test pages – but Apple regards the tools as sufficiently powerful to hide them from public access. They're located in a menu labelled Debug. To activate the option, open Terminal, found in the folder path /Applications/Utilities, and enter this command:

```
defaults write com.apple.Safari
IncludeDebugMenu 1
```

To remove the menu from sight, run the same command but replace "1" with "0". There are also several applications that you can use to trigger the Debug menu without using Terminal. One such option is Safari Enhancer (*www.celestialfrontiers.com*). Tools include a basic JavaScript debugging suite: make sure the Debug menu option "Log JavaScript Exceptions" is ticked, then select Show JavaScript Console to view bug reports as they occur. There's also Snippet Editor, which is essentially a mini graphical HTML editor; you can paste in code and see immediately how Safari renders it, then make adjustments and see the results. Page Load Test allows you to open a page and get feedback on how long it takes to load.

The Debug menu can prove useful even if you're not a designer or developer. User Agent allows Safari to change the identity it logs with the web sites it visits. This is helpful if a particularly dense developer has set a site to accept only IE and Netscape browsers, for example, even though Safari is perfectly capable of rendering the pages.



Lexar JumpDrive Mercury

Have you ever been to a sushi train and wondered if you can finish just one more plate of nori maki? This little USB drive can tell you if you're full — your data that is, not your fish rolls. The JumpDrive Mercury has an onboard display that allows you to check at a glance the used and remaining capacity, even when disconnected. Included with the drive is a security software package that allows you to create password-protected areas and a virtual file shredder when it comes to time for deletion. In 1GB or 2GB capacity, these Mac/PC keys won't cost much more than the "pink plate".

.: CONTACT	Lexar
.: ONLINE	www.lexar.com.au
.: PRICE	From $75
.: VERDICT	★★★★☆

PhotoZoom Pro 2

Nothing says "I love you" like a huge enlargement of a photo of your grandmother — especially if it's a whopping one million by one million pixels. It's not cheap but PhotoZoom Pro 2 lets you make truly gigantic image enlargements while compensating for image loss and blurriness — perfect for camera pros or just scaring small children. The trick is in how the program makes up the new pixels to make the image larger — a special algorithm reconstructs the new bits. The software works as a Photoshop plug-in, or on its own, and is available for PCs and Macs.

.: CONTACT	BenVista
.: ONLINE	www.benvista.com
.: PRICE	$250
.: VERDICT	★★★★☆

CushTop

Doesn't anyone use an old fashioned desk anymore? Take the sales pitch from Belkin for this bright orange laptop cushion, which promises laptop comfort, whether you're on your "lounge, bed or floor". Floor? Well, at least it beats the bed for posture. The CushTop flips to handle either small or large laptops, and it has a small pocket for the power adaptor and other bits and pieces. We're not sure it's meant to be used for this, but we guess you could also use it as a makeshift headrest if you nod off in your loungeroom. Colours also include silver and green.

.: CONTACT	Belkin
.: ONLINE	www.belkin.com/au
.: PRICE	$69.95
.: VERDICT	★★★☆☆

AV Movie Morpher Gold 2.0

We've seen some wacky software in our time, but a movie player that lets you strip out the original voices and replace them with your own? Yes, it's intriguing: sort of like movie karaoke, and made even more exciting by the feature that lets you make the actors sound like an alien, or a priest. Russell Crowe as a visiting alien? Don't say another word, you've got our attention. We're not so sure about the usefulness of the other features (playing, burning), but who cares when the demo video is a cat chirping like a demented ghost spirit, right?

.: CONTACT	Audio4fun
.: ONLINE	www.audio4fun.com
.: PRICE	$79.95
.: VERDICT	★★★★☆

Jabra A320s – Bluetooth USB adaptor

Listen to music over your Bluetooth headset, transfer pictures, sync your mobile calendar and print to Bluetooth-enabled printers — Bluetooth adaptors are very handy little things aren't they? This model looks just like a USB key and plugs into your PC, giving you wireless connectivity in the immediate vicinity. There's a light that tells you if you're connected. It's also good for VoIP connections, so if you're set up with a VoIP service, use this gizmo to get calls hooked up via your headset. If you drive co-workers crazy with your music, this could be for you.

CONTACT	Jabra
ONLINE	www.jabra.com.au
PRICE	$71.95
VERDICT	★★★½☆

LaCie Brick Mobile Hard Drive

It's great to see someone use a bit of flair to transform a mundane tech accessory — these stackable portable drives have a cute plastic Lego-like '80s feel. The look was actually created by a real-life French designer Ora Ito, who made his name doing chic work for European car companies and perfume bottles. The drives are available with USB 2.0 as well as FireWire and come in red, white and blue. Capacities range from 40GB up to 120GB. Just don't leave it with the kids toys if you don't want it incorporated into their latest lego-land creation.

CONTACT	LaCie
ONLINE	www.lacie.com/au
PRICE	$169 (80GB)
VERDICT	★★★☆☆

Razer DeathAdder

We haven't gotten our hands on one yet, but it might be worth watching out for. Logitech fans may disagree, but there's some hype around Razer's new optical gaming mouse. Razer is in raptures over the smoothness of the DeathAdder's response times. It has an 1,800dpi "3G" sensor, which is claimed to beat the pants off an 800dpi sensor; plus, there's rubber non-slip buttons and a long list of things that make it sound like a notebook, rather than a mouse. At the time of writing, the DeathAdder wasn't available in Australia, but we saw pre-orders available online.

CONTACT	Razer
ONLINE	www.razerzone.com
PRICE	$85
VERDICT	★★★½☆

SAS Property Defence

Motion detectors, sensors, wireless networking, military-grade technology, remote monitoring — who cares about robbers? This is worth getting just for the novelty. It's a radio-based home alarm system that transmits back to base when motion sensors are tripped — it's from QuikTrak, the same company that tracks and remotely shuts down stolen car engines. The network uses spread spectrum radio, which QuikTrak likes to point out is used by the military (that's enough for us). Did we mention it's unjammable? Don't mention it on the internet — that's asking for it.

CONTACT	QuikTrak
ONLINE	www.quiktrak.com.au
PRICE	$298 (plus $41 month)
VERDICT	★★★½☆

Hard driving

***Mike Channell* takes a high-speed tour through the world of driving game peripherals.**

Many would argue that the flight sim epitomises the PC game. For a start, it's seen as "serious" in a way that few but the very grittiest of first person shooters could manage. Equally, as peripheral manufacturers realised that there were swathes of would-be pilots sitting in the dim glow of 640 x 480 CRTs, they began producing niche hardware that would increase immersion in these lovingly modelled virtual skyways. In the past few years a similar evolution has occurred with racing games.

With current sims going to extraordinary lengths to replicate the experience of hustling a racing car, they too are becoming serious. The much-celebrated GTR2, for example, was released last year and boasts a physics engine as sophisticated as you'll find in the majority of aircraft sims. Simbin, the game's developer, even claims that the game models petrol sloshing in the car's fuel cell. Suddenly the player isn't simply racing, they are driving, and with that shift in emphasis comes the realisation for most racing game fans that a joypad or keyboard simply won't cut the asphalt.

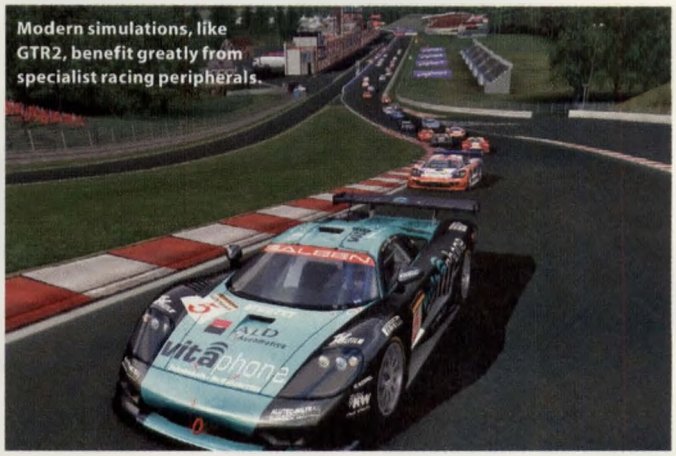
CAR CONTROL

The release of Logitech's G25 steering wheel is the greatest evidence that peripheral manufacturers are taking the replication of a car's cockpit seriously. It's a monstrous hunk of plastic and stainless steel, featuring an 11in diameter wheel, a hefty three pedal set — with each pedal differently weighted — and a separate console with a six-speed gear shifter. It retails for around $400 to $500 and, much to the surprise of some, there's a market for it. While the weight of the equipment is genuinely important, the crucial qualifier for a good-quality USB steering wheel is the force feedback, a welcome hangover from the flight sim. With detailed motorised effects, the G-forces being applied to the front wheels, the weight of the car and the adhesion of the road surface can be instantly relayed to the driver through their hands. Seasoned players will be able to feel the car oversteering and correct the slide even before they visually register it, such is the sophisticated link between modern wheels and simulations. It's fair to say a good steering wheel eventually sends lap times tumbling as well, thanks to greater precision over steering, throttle and brake input — if you fancy playing racing sims online, it's almost a requirement.

HEAD TRACKING

Of course, while the wheel is the best starting point, it's not the only way. NaturalPoint's TrackIR head-tracking software (**www.naturalpoint.com**) works extremely well in games that boast realistic cockpits. Looking towards the apex of the next corner also becomes a possibility with this surprisingly smooth head-tracking software.

The alternative is a multi-monitor setup, also supported by many recent simulations. Using a Matrox TripleHead2Go (**www.matrox.co.uk**) and three monitors, for example, gives a much greater field of view, which is a boon when bashing door handles with other racers.



Modern simulations, like GTR2, benefit greatly from specialist racing peripherals.

TOP-END PERIPHERALS

If you're not satisfied with the consumer-priced hardware though, there are a few outrageously expensive alternatives available, the most thrilling of which is the Force Dynamics motion simulator (**www.force-dynamics.com**). Designed specifically for driving simulators, the example video of employees playing Richard Burns Rally has become the stuff of legend in the sim racing community... but it's more than $40,000 direct, which would buy you a real WRX to race. Also, while the G25 is the top dog for under $1,000, there are other companies such as Ball Racing Developments (**www.brdsim.com**) and FREX (**www.frex.com/gp**) which design and build PC racing wheel and pedal sets based on real racing equipment. So, there are myriad ways to blow money on pretending to drive quickly, but our advice is to invest in a decent, reasonably priced steering wheel, such as the G25. It's the single quickest way to turn a racing game into a driving simulation.

If you have serious cash to splash, you can get a full-motion simulator.

PREVIEW

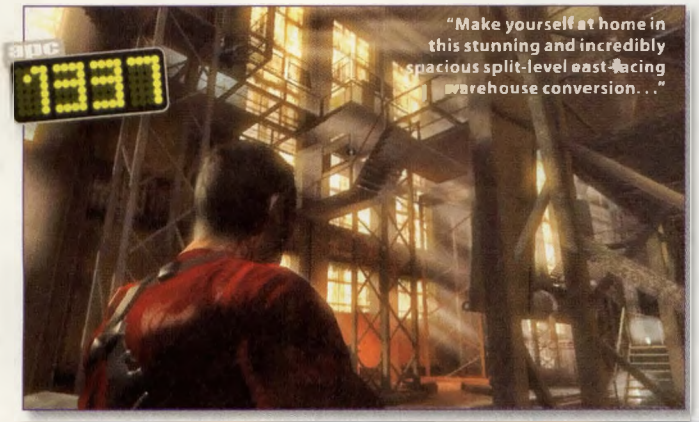
Infernal

Troy Coleman aligns with a demon to save the world from the divine light.

On late 2005, game developers Playlogic Entertainment penned a deal with Metropolis Software to publish Diabolique: License to Sin. Shortly after the ink dried, Diabolique underwent several revisions and gained the moniker Infernal.

The action centres around two opposing agencies that control the Earthly interests of Heaven and Hell — Etherlight, representing Heaven, and the agents of the Abyss on the other side. As ex-Etherlight agent now in the employ of the Abyss Ryan Lennox — we think he lied on his résumé — it's your job to infiltrate Etherlight and ensure evil's survival.

Simple and intuitive game control stays true to the third-person WASD genre; an over-the-shoulder fixed camera angle keeps the action in front and in plain sight.



NPC Artificial Intelligence is amazing. Enemy agents adapt to the environment, avoiding obstacles, or using them for cover. Social awareness has agents communicating with each other, ordering commands or providing covering fire while advancing on your location.

Telekinesis and teleportation are a nice addition to the usual cache of automatic weapons, lasers, shuriken and grenades (after all, the most effective weapon against the unlimited power of Heaven and Hell is an assault rifle and a few hand grenades). Though at times hard to control, teleportation is easily the most compelling of the dark powers — access out-of-reach areas, plus useful for appearing behind an unsuspecting Etherlight agent.

Using pixel shaders where possible and normal mapping for characters, graphics are courtesy of AGEIA's PhysX engine. And they are simply beautiful. Levels progress through ancient monasteries, vast oil refineries, hangers, planes and subterranean laboratories.

With a fairly decent game length of about 16 hours, the only criticism would be that playing through the levels between bosses can get a little samey and the plot is predictable. Still, it's a nice old-fashioned blood-letting: Infernal is definitely worth summoning.

.: CONTACT	Atari
.: ONLINE	www.infernal-game.com
.: PRICE	$89.95
✔	Fantastic AI; great game physics.
✖	Arsenal could be better; predictable.
.: VERDICT	★★★★☆

WoW: The Burning Crusade

Seven and a half million gamers (and _Nick Race_) can't be wrong.

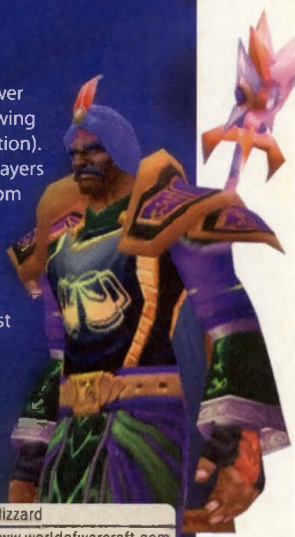
What the World of Warcraft fans really needed was more World of Warcraft. With the release of the first expansion, The Burning Crusade, that's exactly what they've got: new content and skills for high-level characters, as well as two new playable races.

First and foremost, The Burning Crusade has increased the level limit from 60 to 70. Characters can advance further, learning new skills and spells to battle even greater virtual foes. Blizzard has provided a new game area, equivalent to a continent, called Outland, where players can increase their level, accessible through the Dark Portal, a magic interface between the "normal" world of Azeroth and the war-torn battlefront of Orcs, Naaru and a new race, called Dranei.

The gnomes at Blizzard have been busy. The Burning Crusade includes eight major instances (for organised, group adventures) with the promise of more to come. A new skill, Jewelcrafting, allows players to cut gems into various forms which can be inserted into armour and weapons for an extra boost (similar to Diablo II's socketing system), along with new recipes and blueprints for all existing trade skills.

The two new races are the previously mentioned Dranei for the Alliance, and Blood Elves for the Horde. Each have new starting and low-level areas in Azeroth, and for the first time allow Alliance the use of Shaman-class characters, and Horde the use of Paladin-class characters. Also added to the mix is a new battleground, "The Eye of the Storm", which plays like a cross between capture the flag and king of the hill, available to characters levels 61 to 70.

So is it good? For those who don't play, The Burning Crusade doesn't offer much to lower-level characters that wasn't there before (except, perhaps, even less people questing at lower levels and growing economy inflation). Higher-level players will get a lot from this, shown by the fact that The Burning Crusade has been the fastest selling video game ever — and millions of players can't be wrong.



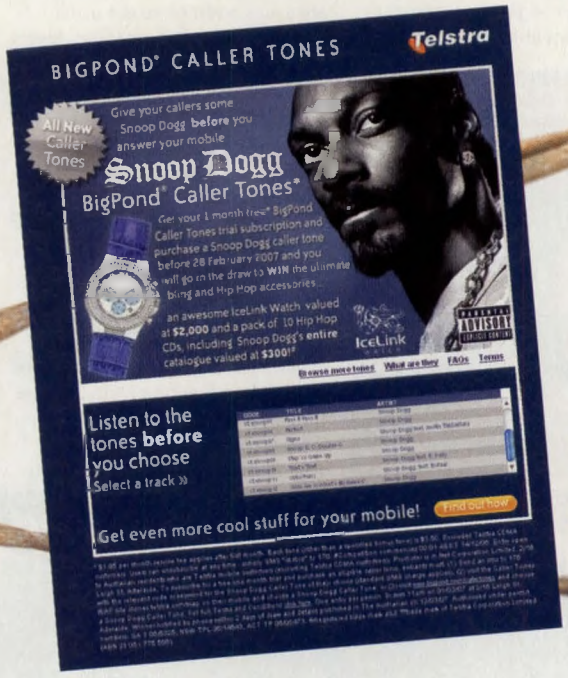
.: CONTACT	Blizzard
.: ONLINE	www.worldofwarcraft.com
.: PRICE	$59.95
✔	More WoW for the addicts.
✖	Not much for new players.
.: VERDICT	★★★★☆

WELL HALO THERE!

Master Chief, is that you? Just when you thought that production on the *Halo* movie had been postponed indefinitely, along comes this exclusive pic direct from the set to give Xbox fanboys hope! Or not. Nope, what you're seeing here is the latest piece of craziness from wacky Canadian inventor Troy Hurtubise. As reported in *The Hamilton Spectator*, the "Trojan" is described by its creator as the "first ballistic, full exoskeleton body suit of armour." Hurtubise, the star of 1996 documentary *Project Grizzly* (which depicts the inventor's attempts to create a grizzly-bear-proof bodysuit), says the Trojan is the result of two years' hard work in his home lab (and CN$15,000 in research and materials). Hoping to garner a deal with police or military funding, Hurtubise maintains that the 18kg exoskeleton (apparently inspired — for real — by *Robocop*) has sustained ballistic testing — and he himself is willing to don the duds in order to prove this fact against live ammo: "I would do it in an instant. Bring it on."

TO INFINITY AND BEYOND!

Putting a whole new spin on the "time capsule" concept, Microsoft is seeking to patent "immortal computing", whereby "storage is leveraged to provide an interactive means to retrieve information associated with a physical artifact." Huh? As reported by seattlepi.com, what it all boils down to is a project to "let people store digital information in physical artifacts and other forms to be preserved and revealed to future generations. . . maybe even to future civilizations." So what does this mean for you? Well, remember last year's Christmas party? From now on, YouTube is the least of your worries: we now have the means to ensure that our indignities are handed down as a legacy. . . *to forever* (or aliens). After all, as seattlepi.com's Todd Bishop points out, "when looking that far in the future, you never know who the end users might be."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WELCOME TO THA DOGGPOND $#?*!

What's my name? Calvin Cordozar Broadus Jr. — aka. Snoop Dogg. Not exactly the kind of squeaky-clean role model that most corporate organisations would want fronting their promotional campaigns. . . but given that Virgin has already so self-consciously cornered the market on being the "cool" mobile provider, you can't blame a telco for trying. BigPond is currently spruiking its "caller tones": soundbites callers hear when they're waiting for you to pick up (instead of just beep beep). There's all sorts of variety on offer, but purchase a Snoop track and not only can you win all sorts of "bling" but, when your boss calls about tomorrow's meeting, he might get to enjoy some of Snoop's lyrics like these:

"Here's a little something about a n** like me / I never should have been let out the penitentiary / Snoop Dogg would like to say / That I'm a crazy motherf***** when I'm playing with my AK / Since I was a youth I smoked weed out / Now I'm that motherf***** y'all read about / Smoking you and your crew, taking a life or two / You don't like how I'm living well f*** you / This is my gang n**** no limit / My n**** c will f*** you up in a minute."**

OK, well maybe you can't get that one, but at time of writing, Snoop *is* fighting charges of possessing a dangerous weapon. Is this really the sort of G Telstra wants to associate itself with? Fo' shizzle.

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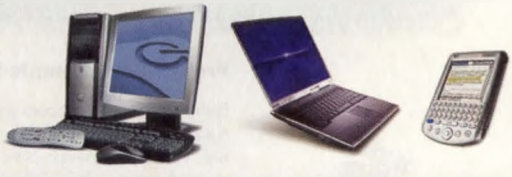

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- Subwoofer speakers
- Midi deluxe ATX case
- Microsoft Multimedia K/B
- Microsoft optical mouse

Celeron 2800	$799
P4 3.0G	$849
P4 3.2G	$859

AMD Gamer

- **Gigabyte** motherboard
- 512m DDR2 Ram
- 80Gb 7200rpm HDD
- 128m ATI X550
- 3D sound
- 16x DVD Rewriter
- 17" LCD monitor
- Subwoofer speakers
- Midi deluxe ATX case
- Benq Win98 keyboard
- Microsoft optical mouse

Athlon 64 3500	$960
Athlon 3800 x2	$1029

Intel Value

- **Gigabyte** motherboard
- 512m PC3200 DDR
- 80Gb 7200rpm HDD
- Panasonic FDD
- 32M video built-in
- 3D sound card built-in
- 16x DVD Rewriter
- Midi deluxe ATX case

Celeron 2800	$429
Pentium 4 3.0G	$479

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400w SPKs with Sub-woofer	$19
Logitech X-230 2 point Spks	$63
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Logitech Z-5500d 5 point	$439
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Creative SW370 2point Spks	$44
Creative T3000 2 Spks	$84
Creative P5800 5 Spks	$140

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Logitech G5	$89
Logitech Notebook plus	$33
Logitech V400	$69
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Intellimouse PS/2 oem	$15
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Microsoft remote k/b	$88
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Logitech Internet oem	$20
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Logitech Cordless EX-110	$59

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Logitech QuickCam Ultra Vis	$175
Logitech QuickCam 5000	$109

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Mediagate MG-25	$138
Mediagate MG-35	$193
Mediagate MG-35HD	$303

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Model	Genuine	TONNY
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BCI-24C	$33.00	$7.20

Model	Genuine	TONNY
BX-3	$49.00	$28.00
BC-02	$39.00	$28.00
BC-03	$38.00	$28.00
BC-05	$50.00	$30.00
BC-20	$49.00	$28.00
BCI-3eBK	$25.00	$ 8.80

Model	Genuine	TONNY
BCI-3eC/M/Y	$19.00	$6.40
BCI-6BK	$24.00	$6.40
BCI-6C/M/Y	$24.00	$6.40
BCI-6G	$24.00	$6.40
BCI-6R	$24.00	$6.40
BCI-6PC/PM	$24.00	$6.40

Model	Genuine	TONNY
BCI-15BK	$24.00	$6.40
BCI-15C	$44.00	$7.20
BCI-16C	$44.00	$7.20
BCI-21BK	$13.00	$4.90
BCI-21C	$28.00	$6.40

NEW! Canon Models

Model	Genuine	TONNY
PGI-5BK	$22.50	$8.50
CLI-8BK	$22.50	$8.50
CLI-8C/M/Y	$22.50	$8.50
CLI-8PC	$22.50	$8.50
CLI-8PM	$22.50	$8.50

Epson Ink Cartridges

Model	TONNY	Model	TONNY	Model	TONNY
T001	$18.90	T039	$10.60	T5594/5/6	$8.90
T003	$ 9.90	T0321	$10.80	T0621	$8.90
T005	$18.00	T0322	$ 7.50	T0631/2/3/4	$7.50
T007	$ 9.30	T0323	$ 7.50	T0731/2/3/4	$9.50
T008	$13.00	T0324	$ 7.50	T0811/2/3	$9.50
T009	$15.00	T0422C/M/Y	$ 9.50	T0814/5/6	$9.50
T013	$ 4.50	T0461	$ 8.90	S020089	$9.90
T014	$ 7.90	T0472/3/4	$ 8.90	S020093	$5.10
T017	$ 9.70	T0491/2/3	$ 8.90	S020097	$9.00
T018	$10.60	T0494/5/6	$ 8.90	S020108	$6.50
T026	$ 9.70	T0540/1/2	$ 8.90	S020110	$9.50
T027	$12.40	T0541/2/3/4	$ 8.90	S020187	$5.10
T028	$ 9.70	T0547/8/9	$ 8.90	S020189	$6.50
T029	$10.60	T0561/2/3/4	$ 8.90	S020191	$9.00
T038	$ 9.60	T5591/2/3	$ 8.90	S020193	$9.50

HP Ink Cartridges

Model		Genuine	TONNY
51625A	(#25)	$46.00	$28.00
51626A	(#26)	$46.00	$28.00
51629A	(#29)	$46.00	$28.00
51633MA	(#33)	$41.00	$32.00
51645A	(#45)	$46.00	$16.00
51649A	(#49)	$48.00	$28.00
C1823D	(#23)	$51.00	$30.00
C4841/2/3/4AA	(#10)	$46.00	$14.00
C4836/7/8A	(#11)	$48.00	$14.00
C5010DA	(#14)	$47.00	$26.00
C5011DA	(#14)	$35.00	$24.00
C6578D	(#78)	$51.00	$30.00
C6614A	(#20)	$44.00	$24.00
C6615DA	(#15)	$44.00	$24.00

Model		Genuine	TONNY
C6625A	(#17)	$48.00	$30.00
C6656AA	(#56)	$32.00	$18.00
C6657AA	(#57)	$51.00	$32.00
C6658AA	(#58)	$37.00	$26.00
C8727A	(#27)	$31.00	$24.00
C8728AA	(#28)	$35.00	$26.00
C8765WA	(#94)	$31.00	$27.00
C8767WA	(#96)	$42.00	$29.00
C9363WA	(#97)	$45.00	$32.00
C8721WA	(#02)	$28.00	$11.00
C8771/2/3WA	(#02)	$16.00	$10.00
C8774/5WA	(#02)	$16.00	$10.00
C9351AA	(#21)	$24.00	$21.00
C9352AA	(#22)	$27.00	$23.00

Brother Ink Cartridges

Model	Genuine	TONNY
LC-21BK	$30.00	$7.90
LC-21C/M/Y	$17.00	$7.50
LC-02BK	$21.00	$7.90
LC-02C/M/Y	$11.00	$7.50
LC-04BK	$28.00	$7.90
LC-04C/M/Y	$16.00	$7.50
LC-47BK	$32.00	$7.90
LC-47C/M/Y	$18.50	$7.50

Model	Genuine	TONNY
LC-57BK	$36.00	$6.90
LC-57C/M/Y	$21.50	$6.50
LC-800BK	$32.00	$7.90
LC-800C/M/Y	$18.50	$7.50

Lexmark Ink Cartridges

Model	Genuine	TONNY
12A1970	$48.00	$32.00
12A1980	$56.00	$35.00
17G0050	$46.00	$32.00
17G0060	$53.00	$35.00
13400HC	$53.00	$36.00
13619HC	$52.00	$38.00
10N0217	$33.00	--
10N0227	$35.00	--

Model	Genuine	TONNY
10N0016 (#16)	$46.00	$36.00
10N0026 (#26)	$49.00	$39.00
15M0120 (#20)	$53.00	$41.00
18C0031 (#31)	$43.00	$35.00
18C0034 (#34)	$43.00	$35.00
18C0035 (#35)	$45.00	$37.00
18L0032 (#82)	$47.00	$39.00
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Model	Genuine	TONNY
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Model	Genuine	TONNY
92298A	$139.00	$ 65.00
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C3903A	$120.00	$ 59.00
C3909A	$220.00	$ 95.00
C4092A	$ 87.00	$ 49.00
C4096A	$135.00	$ 65.00
C4127A	$145.00	$ 65.00
C4127X	$169.00	$ 80.00
C4129X	$210.00	$ 95.00
C4182X	$239.00	$135.00
C7115A	$ 89.00	$ 49.00
C7115X	$115.00	$ 65.00

Model	Genuine	TONNY
C8061X	$165.00	$ 85.00
Q1338A	$189.00	$ 95.00
Q2612A	$ 95.00	$ 59.00
Q2613A	$ 95.00	$ 59.00
Q2613X	$125.00	$ 69.00
Q2610A	$155.00	$ 75.00
Q2624A	$ 96.00	$ 59.00
Q5942A	$190.00	$ 95.00
Q5942X	$279.00	$125.00
Q5949A	$ 99.00	$ 59.00
Q5949X	$169.00	$ 75.00
Q6511A	$169.00	$105.00

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Printer Model	Model	Genuine	TONNY
HP LJ1500/2500, Canon LBP2410	C9700A (BK)	$115.00	$ 65.00
	C9701/2/3A (CYM)	$135.00	$ 79.00
HP LJ4600	C9720A (BK)	$199.00	$155.00
	C9721/2/3A (CYM)	$262.00	$185.00
HP LJ4500, Canon LBP2460/2040	C4191A (BK)	$119.00	$ 59.00
	C4192/3/4A (CMY)	$165.00	$ 69.00
HP LJ8000	C4149A (BK)	$150.00	$ 89.00
	C4150/1/2A (CMY)	$225.00	$155.00
Epson C900/1900	S050100 (BK)	$ 99.00	$ 79.00
	S050097/98/99 (CMY)	$210.00	$119.00
Epson C1000/C2000	S050033 (BK)	$119.00	$ 90.00
	S050034/5/6(CMY)	$249.00	$119.00

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Model	Genuine	TONNY
ML-1210D3	$ 94.00	$ 59.00
ML 1650D8	$185.00	$105.00
ML-1710D3	$ 98.00	$ 59.00
ML-2010	$103.00	$ 59.00
ML-2150D8	$185.00	$140.00
ML-4100D3	$ 99.00	$ 83.00
ML-4500D3	$119.00	$ 73.00
ML-6060D6	$155.00	$ 93.00
SCX-4216D3	$ 99.00	$ 59.00
SCX-5312D6	$ 95.00	$ 79.00
SCX-D4200A	$105.00	$ 69.00
SF-5100D3	$ 89.00	$ 59.00

Brother Toner Cartridges

Model	Genuine	TONNY
TN-100	$ 29.00	$23.00
TN-200	$ 42.00	$23.00
TN-2025	$ 74.00	$59.00
TN-300	$ 42.00	$23.00
TN-3060	$125.00	$65.00
TN-8000	$ 43.00	$23.00
TN-6600	$ 99.00	$65.00
TN-7600	$125.00	$65.00

Canon Toner Cartridges

Model	Genuine	TONNY
E-31	$189.00	$85.00
EP-22	$ 99.00	$49.00
EP-25	$ 99.00	$49.00
EP-26	$109.00	$69.00
EP-32	$145.00	$65.00
EP-52	$185.00	$80.00
FX-3	$132.00	$59.00
CART-303	$ 83.00	$59.00
CART-N	$220.00	$76.00
CART-U	$ 99.00	$69.00
CART-W	$147.00	$55.00

Epson Toner Cartridges

Model	Genuine	TONNY
EPL-5700	$190.00	$49.00
EPL-5900	$205.00	$49.00
EPL-6200	$215.00	$49.00

from $14.95

Lexmark Toner Cartridges

Model	Genuine	TONNY
Optra E210	$129.00	$59.00
Optra E310	$225.00	$69.00
Optra E/E+	$135.00	$59.00
X215	$105.00	$59.00

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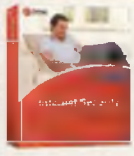

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Academic	$140	$225

*Special introductory price only while stocks last !!!

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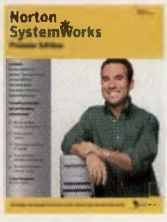

	Norton SystemWorks Premier 2007/v10	Norton AntiVirus 2007
1-User Pack	$99	$48
5-User Pack	$220	$117
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Also available *SystemWorks Standard*		$48

VIDEO & PHOTO EDITING

	New Install	Academic
Adobe Photoshop Elements Version 5	$135	$105
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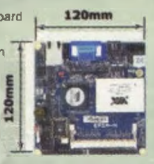
- VIA Vinyl 6 Channel Audio
- 6 USB 2.0 ports
- VIA 10/100 LAN
- VIA TV Out (HDTV)
- LVDS/DVI (optional)
- **Nano-ITX (120mm x 120mm)**
- Digital Media and Mobile Entertainment



Model: EPIA-N

- All in One
- VIA C7™/Eden™ Processor onboard with Integrated UniChrome™ Pro AGP graphics w/MPEG-2 acceleration
- DDRII 400/533
- 1 PCI slot
- Vinyl 6 channel Audio
- IEEE 1394 Firewire
- 6 USB 2.0 ports
- 2 COM ports
- GLAN Controller
- TV Out (HDTV)
- LVDS/DVI (optional)
- **Mini-ITX (170mm x 170mm)**
- Digital Media, Entertainment, Set Top Box

Model: EPIA - EN

Powerful and Flexible Digital Media

- All in One
- VIA C7™ Processor onboard with Integrated UniChrome™ Pro AGP graphics w/MPEG-2 acceleration
- DDRII 400/533
- 1 PCI slot
- Vinyl 6 channel Audio
- 8 USB 2.0 ports
- 1 COM port
- 10/100M LAN
- TV Out
- **Mini-ITX (170mm x 170mm)**
- KIOSK, Thin Client

Model: EPIA - CN

- All in One
- VIA C3™/Eden™ Processor onboard with Integrated Unichrome AGP graphics w/MPEG-2 Acceleration
- DDR 266
- CardBus/CompactFlash Support
- 1 PCI slot, 1 Floppy Connector
- Vinyl 6 channel Audio
- IEEE 1394 Firewire
- 4 USB 2.0 ports
- 2 COM ports
- VIA 10/100 LAN
- TV Out
- LVDS/DVI (optional)
- **Mini-ITX (170mm x 170mm)**
- Wireless Media,Kiosk,Set Top Box

Model: EPIA - MII

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- All in One
- VIA Luke CoreFusion Processor with Integrated UniChrome Pro AGP Graphics with MPEG-2/MPEG-4 Acceleration
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- 2 SATA ports
- VIA Vinyl 6 Channel Audio
- 8 USB2.0
- 4 COM ports
- 2 VIA 10/100 Ethernet (1 optical Gigabit)
- 1 Digital I/O 4GPI/4GPO
- LVDS/DVI (optional)
- **Mini-ITX Form Factor (170mmx170mm)**
- Always-on Point of Sales Applications

Model: EPIA - EK

Digital Media and Entertainment

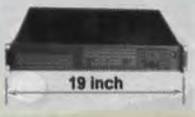
- All in One
- VIA C3™/Eden™ with Processor onboard Integrated Unichrome AGP graphics w/MPEG-2 Acceleraton
- DDR 266
- 1 PCI slot, 1 Floppy Connector
- Vinyl 6 channel Audio
- IEEE 1394 Firewire
- 4 USB 2.0 ports
- VIA 10/100 LAN
- TV Out
- LVDS/DVI (optional)
- **Mini-ITX (170mm x 170mm)**
- Digital Media and Entertainment

Model: EPIA - M

19" Mini-ITX Rackmount

Model No.:7677

- 19" 1U Rackmount
- Internal 3.5HDD x 1
- PCI Expansion Slot x 2
- Slim Type CD / DVD x 1
- 45(H) x 484(W) x 400(D)
- Cooling: 2 x 40mm fans
- Power and HDD indicators
- **Mini-ITX(170mm x 170mm)**
- Power on/off



Firewall/VPN/Telephony/Telecom/VoIP Network/Security/Millitary Application

Model No.: C1B

- 19" 1U Rackmount
- Internal 3.5" HDD x 1
- Internal 2.5" HDD x 1
- PCI Expansion Slot x 1
- Slim CD-rom/DVD-rom x 1
- **19"(W) x 13"(D) x 1.75"(H)**
- **Mini-ITX(170mm x 170mm)**
- Cooling: 2 x 40x28mm fans
- Power on/off and system reset
- Power, LAN and HDD indicators

Firewall/VPN/Telephony/Telecom/VoIP Network/Security/Millitary Application

Model No.: C1E

- 19" 1U Rackmount
- Internal 3.5" HDD x 2
- PCI Expansion Slot x 1
- Slim CD-rom/DVD-rom x 1
- 19"(W) x 14.5"(D) x 1.75"(H)
- Front access USB & LAN ports
- Power LAN and HDD indicators
- **Up to 12" x 9.6" ATX size mobo**
- Power on/off and system reset
- Cooling: 1 x 97mm blower or 2 x 40x56mm fans

World's Smallest Case

Model No.: 1677

- Color: Black
- Front Port: USB x 2
- Internal 2.5 HDD x 1
- Slim Type CD / DVD x 1
- 60W/80W Power Adaptor
- **Nano-ITX (120mm x 120mm)**
- Power on/off and system reset
- **82.5mm(H) x 160mm(W) x 163mm(D)**

Home Media Center, Set Top Box, Kiosk, Wireless Media

Model No.: 2677

- Color: Black
- Expansion Slot x 1
- Internal 3.5" HDD x 1
- 4cm Cooling Fan x 2
- Slim Type CD / DVD x 1
- 60W/80W Power Adaptor
- **Mini ITX (170mm x170mm)**
- Power on/off and system reset
- **63.5mm(H) x 295mm(W) x 272mm(D)**

Home Media Center, Set Top Box, Kiosk, Wireless Media

Model No.: 2600

- Color: Black
- Expansion Slot x 1
- Internal 3.5" HDD x 1
- 4cm Cooling Fan x 2
- Slim Type CD / DVD x 1
- **63.5(H) x 295(W) x 272(D)**
- **Mini ITX (170mm x170mm)**
- 60W/80W Power Adaptor
- Power on/off and System Reset
- USB x 2, Audio x 1, Mic x 1, 1394 x 1, IR Module (Optional)

Set Top Box, Thin Client, Car Entertainment, Smart Mini PC

Model No.: 3677

- Front Port: USB x 2
- Internal 2.5" HDD x 1
- 6cm Cooling Fan x 1
- Slim Type CD / DVD x 1
- 60W/80W Power Adaptor
- **Mini ITX (170mm x170mm)**
- Power on/off and system reset
- **65mm(H) x 210mm(W) x 275mm(D)**

Set Top Box, Thin Client, Car Entertainment, Smart Mini PC

Model No.: 3688

- Front Port: USB x 2
- Internal 2.5" HDD x 1
- 6cm Cooling Fan x 1
- Slim Type CD / DVD x 1
- 60W/80W Power Adaptor
- **Mini ITX (170mm x170mm)**
- Power on/off and system reset
- **65mm(H) x 210mm(W) x 258mm(D)**

Stylish Cube Entertainment center

Model No.: 669

- Expansion Slot x 2
- Internal 3.5" HDD x 1
- 4cm Cooling Fan x 2
- External 3.5" HDD x 1
- External 5.25" HDD x 2
- 200W ATX Power Supply
- **Mini-ITX (170mm x 170mm)**
- USB2.0 x 2, 1394/Audio/Mic x 1
- **200mm(H) x 225mm(W) x 330mm(D)**

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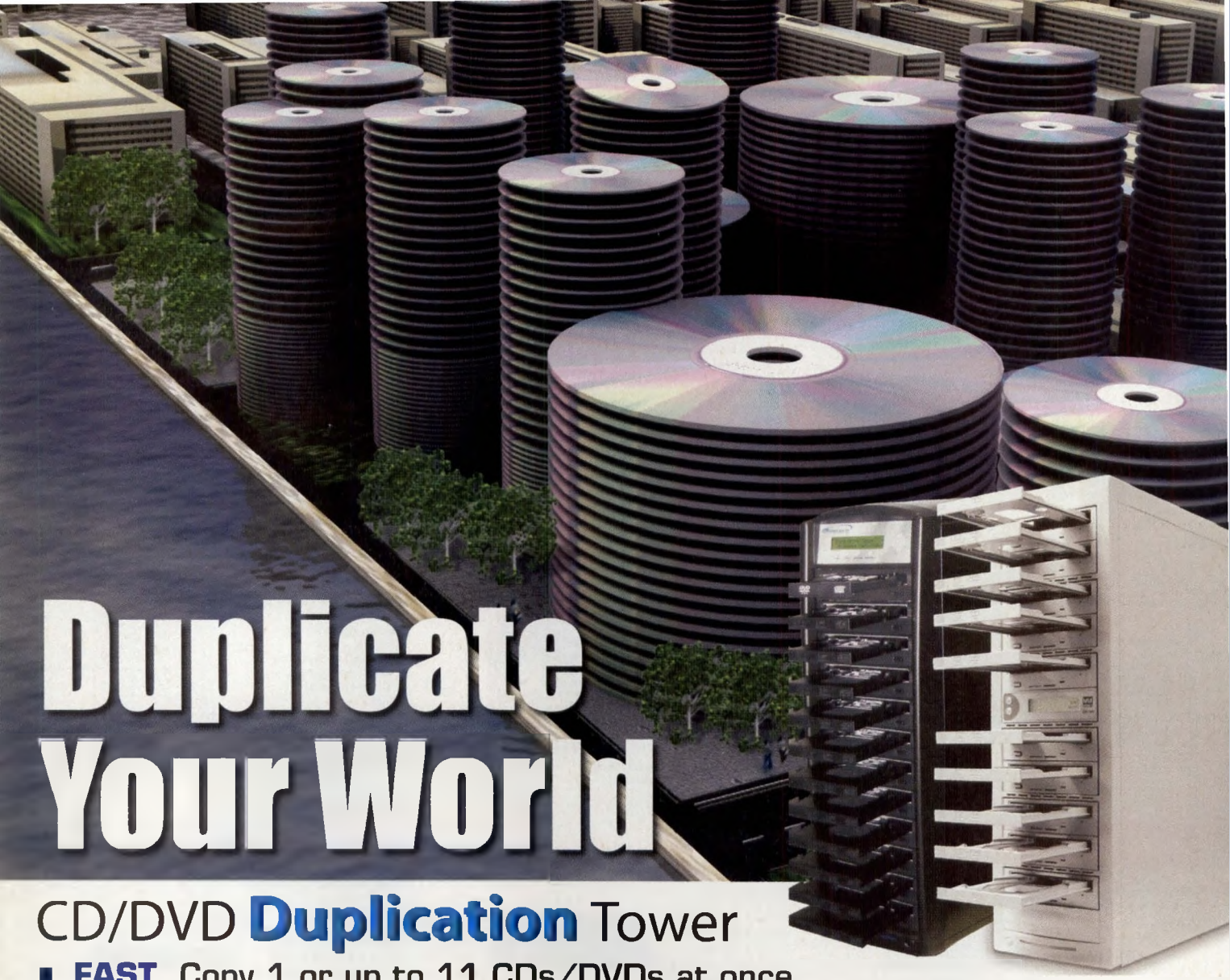

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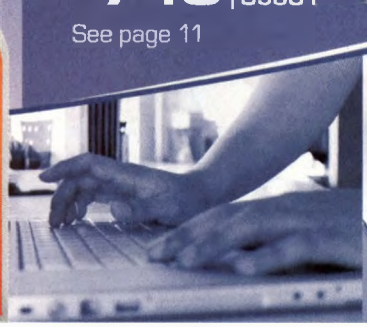

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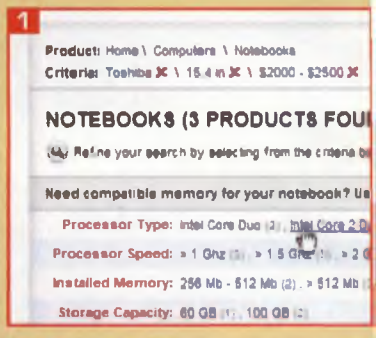
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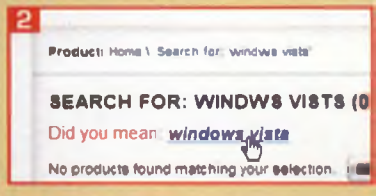
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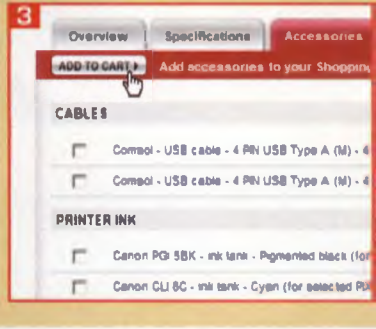

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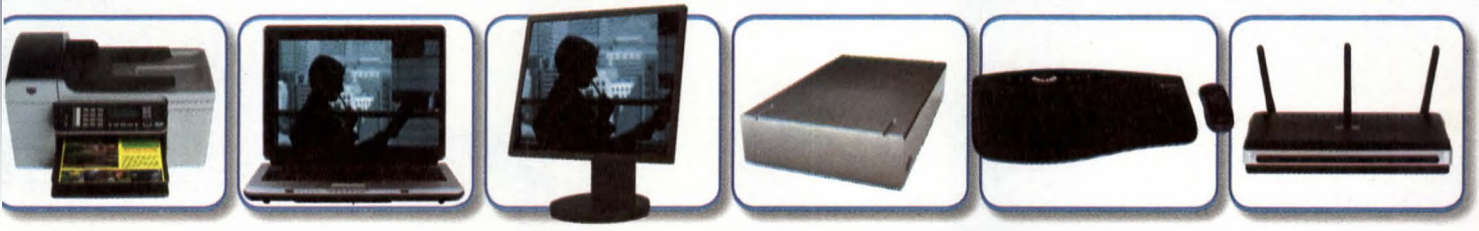

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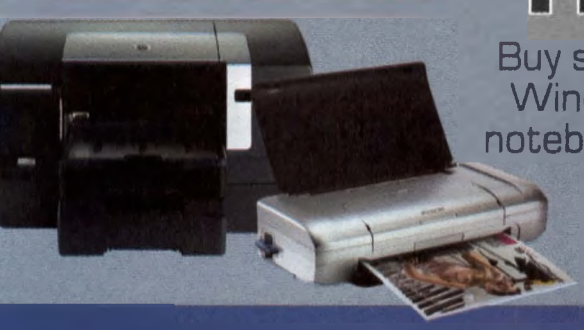

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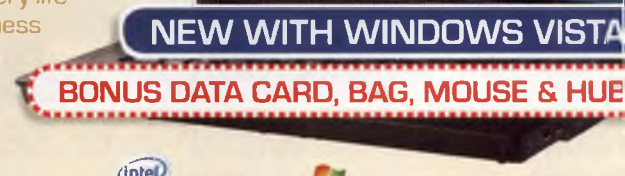
- Windows Vista Business
- 1 year warranty



$1999

U4707 | RENT $22.41/wk*

Powerful Add-ons

hp Docking Station | $295 | T7178
Spare AC Adaptor | $75 | T7175
3yr Harris Technology Extended Warranty | $239 | S0601

TravelMate 3260AWXMi

Cost effective mobile solution

- Intel Core Solo T1350 1.8GHz
- 2 x 512MB DDR2 RAM
- 80GB* Hard Drive
- DVD SuperMulti Dual Layer
- **14.1" WXGA Widescreen**
- Wireless LAN 802.11a/b/g
- Weighs 2.4kgs
- Windows Vista Business

$1399

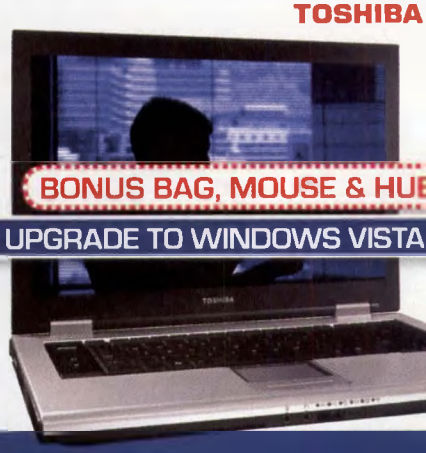
U4692 | RENT $15.69/wk*

Tecra A8

TOSHIBA

Everyday machine for your office

- Intel Core Duo T2400 1.8GHz
- 2 x 512MB DDR2 RAM
- 80GB# Hard Drive
- DVD SuperMulti ±Dual Layer Drive
- **15.4" WXGA Widescreen**
- Wireless LAN 802.11a/b/g
- Weighs 2.9kg
- Windows XP Professional
- 1 year warranty
- **LIMITED STOCK**



$1799

U1602 | RENT $20.17/wk*

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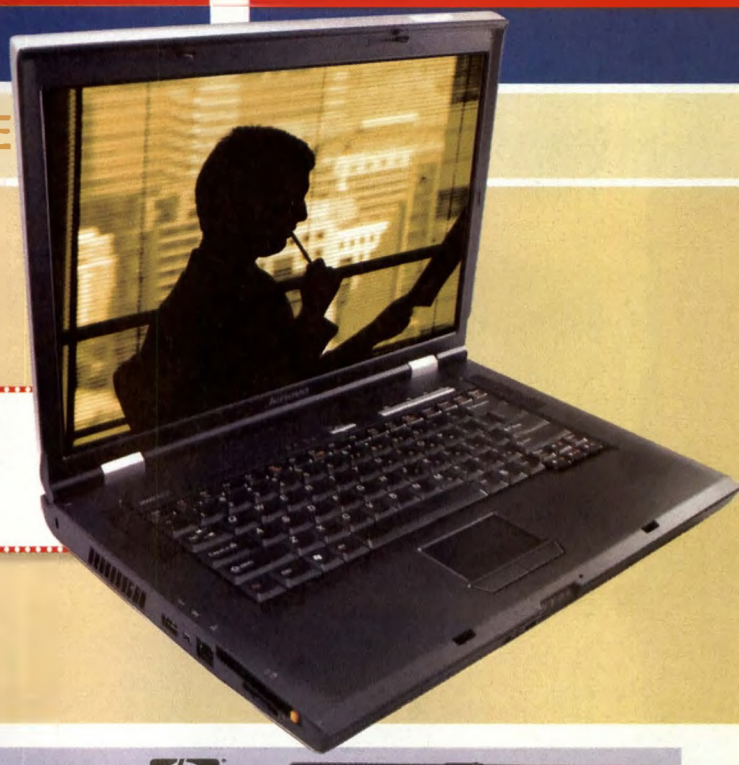
VERSATILE MOBILE PERFORMANCE



N100

lenovo

- Intel Core Duo T2060 1.6GHz
- 512MB DDR2 RAM
- 80GB* Hard Drive
- DVD SuperMulti ±Dual Layer Drive
- **15.4" WXGA Widescreen**
- Wireless LAN 802.11a/b/g
- Bluetooth v2.0
- Weighs 2.8kg
- 4-in1 Multicard Reader
- Up to 3 hours of battery life
- Windows Vista Business
- 1 year Warranty

BONUS 80GB EXTERNAL HARD DRIVE OR 2GB MP3 PLAYER[3]

$1399

U5349 | RENT $15.69/wk*

intel Centrino Duo | WiFi | Windows Vista

NOTEBOOKS. YOUR OFFICE ON THE GO

Powerful Add-ons

1GB RAM for HP | $347 | T7407
Notepac Case for 15.4" | $55 | 24697
Trademark Toploading Case for 15.4" | $89 | 34975

1GB RAM for Sony | $322 | T7277
Sony Carry pouch for SZ | $59 | C1721
Logitech Cordless Desktop S510 | $99 | S8911

nx6320

Perfect for business

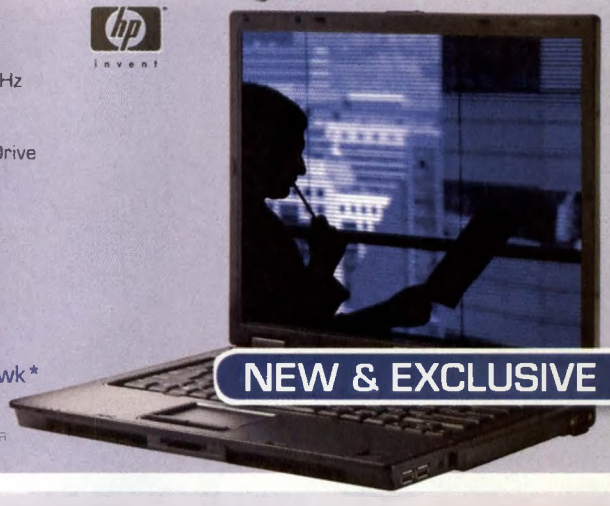
hp invent

- Intel Core 2 Duo T5600 1.8GHz
- 1GB DDR2 RAM
- 120GB* Hard Drive
- DVD SuperMulti Dual Layer Drive
- **15" XGA Screen**
- Wireless LAN 802.11a/b/g
- Weighs 2.8kg
- Up to 3 hours of battery life
- Windows Vista Business
- 1 year warranty

$1899

U5524 | RENT $21.29/wk*

intel Centrino Duo | WiFi | Windows Vista Business



NEW & EXCLUSIVE

VAIO SZ48GN

SONY

Cutting edge technology

- Intel Core 2 Duo T7200 2GHz
- 1GB DDR2 RAM
- 160GB* Hard Drive
- DVD SuperMulti ±Dual Layer Drive
- **13.3" WXGA Clear Bright LED Widescreen**
- nVidia GeForce Go 7400 with 319MB Turbo Cache
- Wireless LAN 802.11a/b/g
- Bluetooth v2.0
- Weighs 1.9kg
- Motion Eye Camera
- Windows Vista Business
- 1 year warranty

NEW & EXCLUSIVE

BONUS SPEAKERS & 1GB MICROVAULT

$3699

U5422 | RENT $38.62/wk*

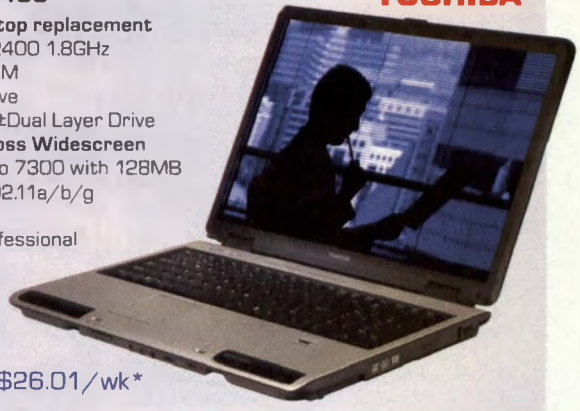
intel Centrino Duo | Bluetooth | Windows Vista Business

Satellite Pro P100

TOSHIBA

Widescreen desktop replacement

- Intel Core Duo T2400 1.8GHz
- 512MB DDR2 RAM
- 100GB* Hard Drive
- DVD SuperMulti ±Dual Layer Drive
- **17" WSXGA+ Gloss Widescreen**
- nVidia GeForce Go 7300 with 128MB
- Wireless LAN 802.11a/b/g
- Bluetooth v2.0
- Windows XP Professional
- 1 year warranty
- **LIMITED STOCK**



$2399

A7575 | RENT $26.01/wk*

intel Centrino Duo | Bluetooth | Windows[2]

BONUS 512MB RAM^

EXPRESS UPGRADE TO WINDOWS VISTA[2]

Desktops, Monitors & Projectors

Solutions for the home or office...

932B Monitor SAMSUNG

- Viewable Image Size: 19"
- Interface: Analogue/Digital
- Resolution: 1280x 1024
- Response Time: 5ms
- Contrast Ratio: 700:1
- Apple and PC compatible
- 3 year on site exchange and zero dead pixel policy

$369

U5079 | WHITE

DID YOU KNOW

Windows Vista is here. **windowsvista.ht.com.au** contains valuable information about Microsoft Windows Vista and Office 2007.

Click and start learning today.

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*Rentamart: The figures quoted are based on a per week basis over 3 years. Terms and conditions apply. For details see: rentamart.ht.com.au

Available capacity of hard drive may be less due to preinstalled software

[1]Purchase any advertised Toshiba projector until 31/03/07 and recieve 1 Bonus aluminimum case or 1 universal ceiling bracket via redemption directly from Toshiba.
Visit **toshiba.ht.com.au** for redemption form and full terms and conditions.

[2]Available via redemption from Acer from 01/03/07 to 31/03/07.
Visit **acer.ht.com.au** for details.

AcerPower FH Microtower acer

- **Processor:** Intel Pentium 4 630 3.0GHz
- **Memory:** 1GB DDR2 (2 x 512MB)
- **Hard Drive:** 80GB SATA (7200RPM)
- **Optical Drive:** 16x Dual Layer DVD+/-RW
- **Operating System:** Microsoft Windows Vista Business
- **Warranty:** 1 year limited onsite

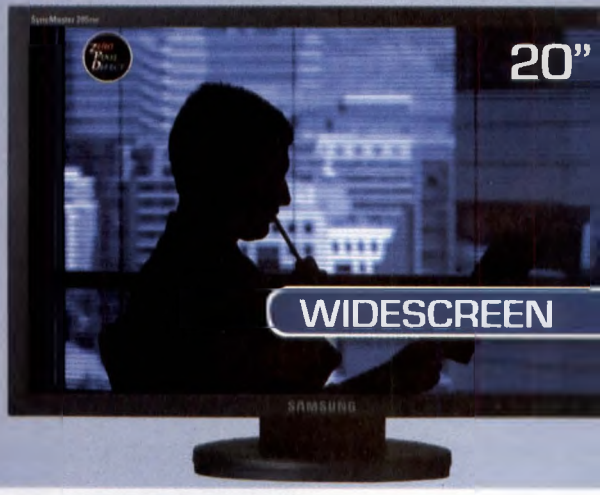
$899 BEFORE CASHBACK YOU PAY $998

U4524 | RENT $10.40/wk*

VERSATILE DUAL CORE PC BUNDLE

Samsung 205BW SAMSUNG

- Viewable Image Size :20"
- Interface: Analogue/Digital
- Resolution: 1680 x 1050
- Response Time: 6ms
- Contrast Ratio: 600:1
- Wall mountable, tilt adjustment, HAS
- 3 years on site exchange and zero dead pixel policy



$499

A7499 | BLACK
A7498 | SILVER

ULTIMATE PORTABILITY ONLY 1KG

BONUS[1]

P8 DLP Projector TOSHIBA

- DLP technology
- XGA resolution
- 1500 ANSI Lumens
- 2100:1 contrast ratio
- Compact 1.0kg
- Perfect combination: extremely mobile and bright
- Includes soft carry case and remote
- 3 year warranty

$2499

T3878 | RENT $27.10/wk*

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harristechnology

Combines great multi-task execution and advanced security with blazing speed
Lenovo 3000 - J110

lenovo

- **Processor:** Intel Core 2 Duo E6300 Dual Core
- **Memory:** 1GB (2 x 512MB) PC4200 DDR2 SDRAM
- **Hard Drive:** 250GB SATA (7200RPM)
- **Optical Drive:** 16x Dual Layer DVD+/-RW
- **Operating System:** Microsoft Vista Business
- **Warranty:** 1 year limited warranty

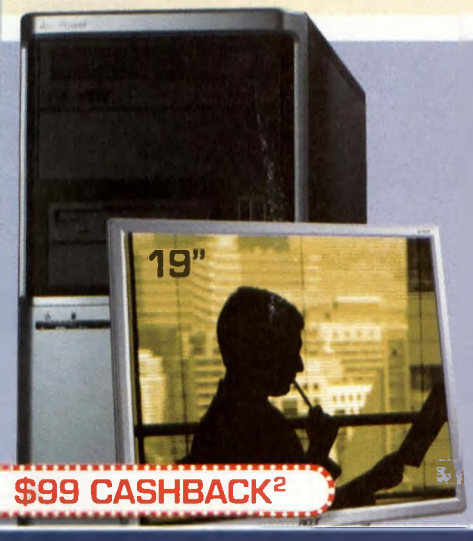
LENOVO NOW AVAILABLE AT HARRIS TECHNOLOGY

HARRIS TECHNOLOGY EXCLUSIVE

$1199

S9367 | RENT $13.87/wk*

Intel Core 2 Duo | Windows Vista Business



AcerPower FH Microtower Bundle

acer

- Processor: Intel Core 2 Duo E6300 Dual Core
- Memory: 1GB DDR2 (2 x 512MB)
- Hard Drive: 160GB SATA (7200RPM)
- Optical Drive: 16x Dual Layer DVD+/-RW
- Operating System: Microsoft Windows Vista Business
- Warranty: 1 year limited onsite
- Monitor: Acer 19" Widescreen LCD

$1699

U4543 | RENT $20.16/wk*

BEFORE CASHBACK YOU PAY $1798

$99 CASHBACK[2]

WINDOWS VISTA BUSINESS EDITION

Intel Core 2 Duo | Windows Vista

ASK US ABOUT EXTENDED WARRANTY

Samsung 225BW

SAMSUNG

- Viewable Image Size: 22"
- Interface: Analogue/Digital
- Resolution: 1680x 1050
- Response Time: 5ms
- Contrast Ratio: 700:1
- 3 years on site exchange and zero dead pixel policy

WIDESCREEN

$599 | RENT $6.93/wk*

U4737 | BLACK
U4987 | SILVER

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Tax deductible
Always have the latest equipment
Get more equipment
Fast approval

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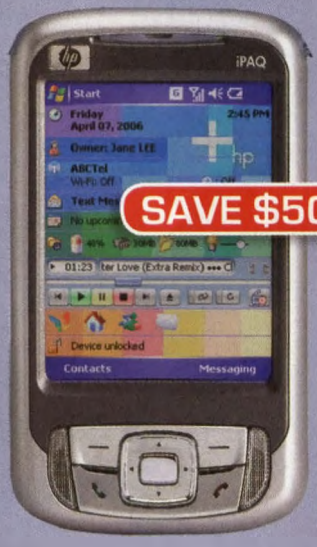
Stay in touch...

iPAQ rw6828 Multimedia Messenger



- Intel PXA272 416MHz
- 128MB ROM/64MB SDRAM
- 2.7" TFT LCD 1600 x 1200 Res
- 2 megapixels
- Mini-SD
- Tri-Band GSM/GPRS/EDGE
- Microsoft® Windows Mobile 5.0, Outlook Mobile, Office Mobile (Word, Excel, Powerpoint), Internet Explorer Mobile

$849

T7344 | RENT $9.82/wk*

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*Rentsmart: The figures quoted are based on a per week basis over 3 years. Terms and conditions apply. For details see: **rentsmart.ht.com.au**

[1]Cashback available from 01/02/07 to 30/03/07 via redemption from Mio. See **mio.ht.com.au** for details

[2]Cashback available from 01/02/07 to 30/03/07 via redemption from Uniden. See **uniden.ht.com.au** for details

Digiwalker A701 Phone/PDA/GPS

- Processor: Intel® PXA-270 520MHz
- Memory 128MB Nand Flash / 64MB SDRAM
- GSM Tri Band GSM/GPRS
- GPS Built-in GPS module SiRFStar III chipset
- SD / MMC SD/IO, MMC-compatible
- 2.7" Touchscreen TFT LCD
- Resolution 320 x 240, 65K Colours, Portrait
- Connectivity USB 1.1, Bluetooth® 1.2
- Camera Fix Focus 1.3 MP CMOS
- Software: Microsoft® Outlook, Microsoft® Office™ Mobile,Custom applications: E-utility, E-viewer, E-calculator, Mio Menu, customised Today screen

NEW TO HARRIS TECHNOLOGY

$1199 BEFORE CASHBACK YOU PAY $1299

U4702 | RENT $15.03/wk

Optio M30 Digtal Camera

Sporting an ultra-slim body with a fresh, textured design, the affordable Optio M30 is perfect for when you're out and about.

$299 | U5470

Mju 740 7 megapixel Digital Camera - Silver

- 7.1 megapixel
- 5 x Optical Zoom
- 2.5" LCD Screen
- Nightproof Light Sensitivity - up to ISO 2500
- Splashproof
- Shakeproof

$399 | U5437

Uniden DSS7960+1 Dual Line Phone

- Distinctive caller ID indicators
- Digital duplex speakerphone on handset
- 2 Line dual keypad cordless phone
- 5.8GHz digital spread spectrum technology phone system
- Multi (10) handset capable (2 Handsets Included)
- 7 way handset conferencing
- Wireless network friendly
- 2 years warranty

$249 | U4664

BEFORE CASHBACK YOU PAY $269

Uniden HS910 Headset | $29.95 | U0574

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SBS Server Bundle Proliant ML110G4

hp invent

- Microsoft Windows Small Business Server Standard Edition R2
- Dual-Core Intel Pentium D Processor 820 2.8GHz-800Mhz-2x1MB L2 Cache
- 2 x 160GB Non Hot Plug SATA Hard Disk Drive
- 1GB PC2-5300 ECC (DDR2-667Mhz) Memory
- Embedded 4 Port SATA Controller
- 48x CD ROM

intel Pentium D

$1695

U3865 | RENT $19.00/WK*

Windows Small Business Server 2003

D-Link DNS-323 2-Bay Network Storage Enclosure

NEW

- Secure and share your digital files
- Insert either one or two internal 3.5" SATA hard drives without using any tools or attaching any cables
- Access stored files over the internet

$389 | U4955 D-Link

DG834N RangeMax NEXT ADSL Modem/Router

NETGEAR

- Complies with draft 802.11n,backwards compatible with 802.11b/g
- Interoperates at 270Mbps with other products powered with Intensi-fi

$367 | T7509

Network Adaptors available:

WN311B Desktop Adaptor	T9167	$189
WN121T Notebook Adaptor	U1298	$249
WN511B USB Adaptor	T7508	$199

Wireless-N Access Point with Power over Ethernet

LINKSYS

- Gigabit Ethernet LAN interface
- Full backwards compatibility for 802.11b and 802.11g
- Supports WEP, WPA-PSK,WPA2-PSK, WPA2-ENT,WPA-ENT authentication (802.11i ready)

Enhanced Security for Business

$359 | U0056

Network Adaptors available:

WPC4400N Desktop Adaptor	U1238	$249

Buffalo Home Server TeraStation 1TB Network Storage Centre

- 10/100/1000 Gigabit Ethernet port
- UPS compatibility to allow automatic or manual shutdowns safely when power is interrupted (serial port)

$1599 BUFFALO

U0705 | RENT $17.93/wk*

NP295 Wireless Homeplug Starter Kit

NetComm

THE EASIEST WAY TO NETWORK AND SHARE BROADBAND!

Pack contains:
- NP280W Wireless Homeplug
- NP285 Turbo Homeplug

NEW

$349 | U5476

24-Port 10/100/1000 Gigabit Switch SR2024

LINKSYS

- Twenty-four 10/100/1000Mbps, half/full duplex, switched ports, and two Mini-GBIC expansion ports

$699 | M5854 | RENT $8.09/wk*

Netgear SC101 Storage Central

- Share files easily with everyone on the network, while keeping your personal files private
- Setup and configuration are a breeze
- Easy upgradeability through IDE drives
- Connect via RJ - 45

$175 | 34265 NETGEAR

DPR-1260 Wireless 4 Port Print Server

D-Link

- 4 USB 2.0 Printer Connections
- Ethernet Connection to Wired Network
- Share Up to 4 USB Printers, Multifunction Printers

$223
T9475

SSL312 Prosafe VPN Concentrator 25

NETGEAR

- Provides browser based secure access to your corporate network
- Remote Access – Supports 25 concurrent tunnels and is tailored for the small and mid-sized businesses

$699 | T8494 | RENT $8.09/wk*

Home Series Battery Backup 400VA (UPS)

Battery Backup keeps up to 3 devices running in the event of a power outage to ensure your important work can be saved before shutting down.

$99 | T7156 BELKIN

We have all your storage solutions...

Western Digital Passport 120GB Drive

- USB 2.0 interface
- 5400 RPM 2MB Cache
- WD Sync synchronization and encryption software lets you save your critical data, and take it with you
- Rugged, protective case and shock-tolerant 2.5" hard drive
- PC and MAC compatible
- Weight 277grams

$179 | U5608 WD Western Digital

Western Digital My Book Essentials 320GB External Hard Drive

- Hi-Speed 4 Pin USB
- 7200 rpm - buffer:8 MB
- Google Search tools

$199 | U5595 WD Western Digital

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LaCie 160GB External Portable Hard Drive

LACIE

The perfect travel companion for carrying your files on the road, the LaCie Mobile Drive delivers generous storage that fits in your pocket. Its durable aluminum body reliably protects your data no matter where you go. Plug it into any computer or laptop with a USB port. Since it's USB bus-powered, plug & play, it couldn't be easier to use.

- Large 160GB storage capacity
- Hi-speed USB 2.0
- 4 pin USB,5400 rpm, buffer: 2MB
- Ultra portable slim design
- Sturdy metal casing

$229 | U4680

Sandisk Cruzer Titanium U3

SanDisk

- Retractable USB connector
- Performance: 15MB/s read speed & 9MB/s write speed
- Rugged Liquidmetal® body
- Crush force exceeds 2000 lbs
- Laser etched graphics and finish
- U3 smart enabled

NEW 4GB CAPACITY

$169 | 4GB | U5599

$97.95 | 2GB | T8480

Logitech diNovo Media Desktop Bluetooth Laser

Logitech

- Combines a numeric pad, calculator & remote control
- LCD display and rechargeable MX laser mouse

$299 | T3582

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Western Digital My Book Pro Edition II External Hard Drive

Get extraordinary capacity or extra data protection with this dual-drive, triple-interface RAID storage system from WD. A three-year limited warranty and one-of-a-kind features make this the most powerful product in WD's My Book family of external drives and the preeminent storage system in its class.

- 1,000 GB of storage
- USB 2.0/Firewire 400/Firewire 800
- Capacity gauge
- Raid
- EMC® Retrospect® Express Backup and System Recovery Software

$749 U5601 | RENT $8.66/wk*

Western Digital

SanDisk 2GB Mini SD

One of the world's most popular memory card formats for mobile phones, the miniSD provides all of the same functions as a full-size SD including built-in security for copyrighted content along with great performance for storing music, video, and photographs for use on-the-go.

$74.95 | T6172

SanDisk

LaCie 500GB Ethernet Gigabit Mini

- Gigabit Ethernet & USB2.0 interface
- Quick & easy IP configuration
- Expandable capacity through a USB host port
- Users 7 share level permissions
- Jumbo Frame support

$499 | 500GB | U4961

$849 | 1TB | U5309

LACIE

WITH SPACE AT A PREMIUM, STASH THE OVERFLOW IN THESE NIFTY DEVICES

LaCie 500GB External Hard Drive - Porsche Case

LACIE

- Hi-Speed USB connection
- 7200 RPM 8MB Cache
- Save photos, MP3s, data files
- Stackable to save desk space
- Back up valuable information
- Fast interface transfer rate: up to 480Mbits/s
- Lightweight, durable & stackable

$349 | 500GB | T9416

$199 | 250GB | L8724

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- Affordable monthly repayments
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- Always have the latest equipment
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- Fast approval

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All your printing needs covered...

Back to work printing promotion

Epson Stylus Photo R230

EPSON

- Print Speed: Up to 15ppm mono/colour
- Print Resolution: 5760 x 1440 dpi
- Total Media Capacity: 120 sheets
- Connection: USB
- Warranty: 1 year

$149 | T3373

HP Deskjet 460 CB Portable

PERFECT MOBILE PRINTER

- Print Speed: up to 17ppm
- Print Resolution: 1200 x 1200 dpi
- Total Media Capacity: 50 sheets
- Memory: 32MB
- Connection: USB
- Monthly duty cycle: 500 pages

$449 | T3509

Purchase with Windows Vista and receive $100 Cashback[1] Commences 5th March

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Brother MFC-665CW

brother

- Printer/Copier/Scanner/Fax
- Print Speed: up to 20ppm (mono) / up to 18ppm (colour)
- Scan Resolution: 600 x 2400 dpi
- Standard Media Capacity: 100 sheets
- Memory: 16MB

$299 | U5346

Canon PIXMA MP830

Canon

- Printer/Copier/Scanner/Fax
- Print Speed: up to 30ppm (mono) / up to 24ppm (colour)
- Print Resolution: up to 600 x 600 dpi (mono) / up to 9600 x 2400 dpi (colour)
- Scan Resolution: 2400 x 4800 dpi

$529 | T6987

HP Laserjet 1022N

- Print Speed: up to 18ppm - mono (A4)
- Print Resolution: 1200 x 1200 dpi
- Total Media Capacity: 260 sheets
- Memory: 8MB
- Connection: Hi-Speed USB, Ethernet 10/100Base-TX
- Monthly Duty Cycle: 8000 pages
- Warranty: 1 year

$499 | R9104

HP LaserJet P2015N

- Print Speed: up to 26ppm
- Print Resolution: up to 1200 x 1200 dpi
- Memory: 32MB (expandable 288MB)
- Connection: hi-speed USB, Ethernet (embedded print server)
- Warranty: 1 year

$699

U4728 | RENT $8.09/wk*

HP PROMOTION

Terms & Conditions

[1]Purchase Windows Vista (retail boxed version) or a Desktop/Notebook PC preloaded with Microsoft Vista and one of a selected range of Hewlett Packard printers on the same invoice between March 5th 2007 and April 30 2007 and receive a $100 cashback from Hewlett Packard. Visit **hp.ht.com.au** for more details

[2]Via redemption from Harris Technology on purchases of the Samsung CLP300n between 01/03/07 and 30/04/07. Visit **samsung.ht.com.au** for more details.

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SPEND $500 OR MORE ON ANY PRINTER FROM OUR RANGE DURING FEBRUARY & MARCH 2007 TO GO INTO THE DRAW TO WIN ONE OF 5 FANTASTIC PRIZES.

1 x HP 17" widescreen notebook | valued at $2500
2 x Nokia 3250 mobile phones | valued at $500 each
2 x Sony DSC-T30 digital cameras | valued at $700 each
For full terms and conditions visit **printeroffers.ht.com.au**.

Authorised under NSW permit No. TPL06/14924 and ACT Permit No TP06/05550.

SAVE 10%

on your next ink or toner purchase

Buy any printer from Harris Technology in February or March 2007, then buy the ink or toner for that printer by the end of April and receive a 10% discount off the purchase price.

Fuji Xerox Docuprint C525A

FUJI XEROX

- Print Speed: up to 25ppm mono and 5ppm colour
- Print resolution: 600 dpi x 600 dpi
- Total Media Capacity: 200 sheets
- Connectivity: Parallel, USB, Ethernet
- Memory: 64MB
- Warranty: 1 year

BONUS Duplex Kit valued at $399

$399 | R6445

Samsung CLP-300N Colour Laser

SAMSUNG

- Print Speed: up to 16ppm
- Print Resolution: 2400 x 600 dpi
- Total Media Capacity: 150 sheets
- Memory: 64MB
- Connection: USB, Ethernet
- Monthly Duty Cycle: 24200 pages
- Warranty: 1 year on-site

EXCLUSIVE BONUS $50 Coles Myer Gift Card[2]

$499 | U0104

Also Available: Samsung CLP-300 | **$459** | U4583

HP Colour LaserJet 2600N

- Print Speed: up to 8ppm mono/8ppm colour
- Print Resolution: 600 x 600 dpi
- Total Media Capacity: 250 sheets
- Memory: 16MB
- Connection: Hi-Speed USB, Ethernet 10/100Base-TX
- Monthly Duty Cycle: 35000 pages
- Warranty: 1 year

Purchase with Windows Vista and receive $100 Cashback[1] Commences 5th March

$529 | S2505

ASK US ABOUT EXTENDED WARRANTY

Samsung SCX-4521F Mono Laser 4-in-1 MFP

SAMSUNG

- Printer/Scanner/Copier/Fax
- Print & Copy Speed: Up to 20ppm
- Print Resolution: Up to 600 x 600 dpi
- Scan Resolution: 600 x 600 dpi
- Memory: 16MB
- Warranty: 1 year

$399 | T6638

HP 3055 All-in-One

- Print/copy/scan/fax
- Print speed: up to 18ppm
- Print Resolution: up to 1200 dpi
- Scan resolution: 600 dpi
- Connection: Hi-speed USB, Ethernet
- Warranty: 1 year

Purchase with Windows Vista and receive $100 Cashback[1]. Commences 5th March

$749
T4390 | RENT $8.66/wk*

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The 'WOW' starts now...

BONUS OFFER Valued at $139[1]

When you purchase Vista Business Edition (either upgrade or full) you will receive a Transcend 1GB USB Drive (with Ready Boost) + 2 Months complimentary Online Training on Windows Vista Business supplied by Quicknowledge

Exclusive Bonus Offers on Windows Vista & Office 2007

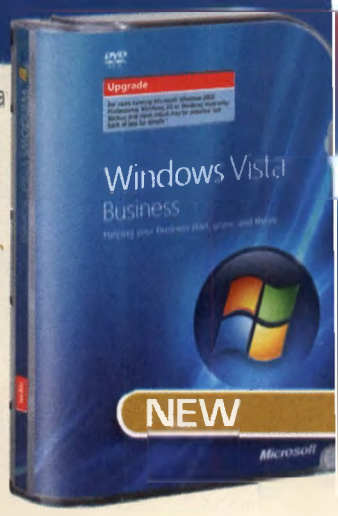
Windows Vista Business

Windows Vista Business DVD Upgrade

Windows Vista Business offers powerful new ways to organise, find, and share information while staying better connected whether you are in the office or on the road. For small businesses, Windows Vista Business will help keep PCs running smoothly and more securely, so you will be less reliant on dedicated IT support.

$379 | U4504

Also Available:
Windows Vista Business | U4503 | **$565**



Microsoft Office Small Business 2007 Upgrade

Work efficiently with an improved, easy-to-use comprehensive suite of productivity, marketing tools and contact management software designed for small business. Including Word 2007, Excel® 2007, PowerPoint® 2007, Outlook® 2007 with Business Contact Manager and Publisher 2007 applications

$499 | U1828

Also Available:
Microsoft Office Small Business 2007
U1827 | **$749**

Microsoft Office Professional 2007 Upgrade

Microsoft Office

Helps businesses and professionals save time, stay organised with powerful, improved productivity, contact management and database tools. Including Word 2007, Excel® 2007, PowerPoint® 2007, Outlook® 2007 with Business Contact Manager, Publisher 2007 and Access™ 2007 applications

$549 | U1831

Also Available:
Microsoft Office Professional 2007
U1830 | **$849**

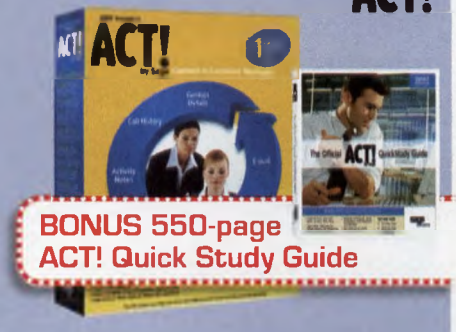
BONUS OFFER Valued at $229[1]

When you purchase Office 2007 Small Business Edition (either upgrade or full) OR Office 2007 Professional edition (either upgrade or full) you will receive 1 hour onsite installation from Quicknowledge + 2 Months complimentary Online Training on Microsoft Office supplied by Quicknowledge

Office productivity

ACT! 8.0

ACT!



ACT! 9.0 allows you to keep all your critical customer information in one central database, stay in touch and grow your business.

$255 | U4956

PDF Converter Professional 4 + Dragon NaturallySpeaking 9 Bundle

NUANCE

Turn talk into text and instantly turn PDF file into documents.

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FileMaker Pro 8.5

FileMaker

BONUS eBOOK OFFER[2]

FileMaker Pro 8.5 is an easy-to-use database software that helps you manage people, projects, assets and more – the easy way.

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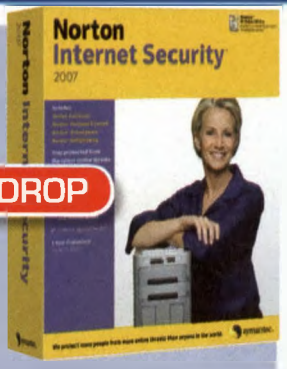
Internet Security

Norton Internet Security 2007



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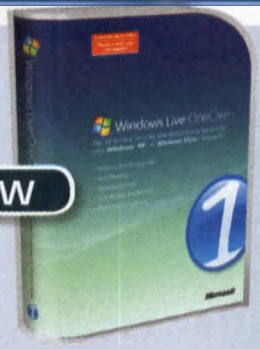
- Detects and eliminates spyware
- Removes viruses and Internet worms
- Protects against hackers
- Automatically detects and blocks viruses, spyware, and worms

symantec.

$69 | Single User | U0335

Windows Live Onecare



NEW

- The All-In-One Security and Performance software for your Windows XP or Windows Vista PC
- Free phone and email support 24/7
- Install on up to 3 PCs in your household

$99 | U4507 Microsoft

TrendMicro Internet Security 2007

BONUS USB DRINK WARMER/COOLER[4]

- Advanced spyware protection
- Antivirus security
- Free updates and telephone support
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Software

All your accounting needs

MYOB Accounting v16

Bonus Norton Internet Security 2007[3]

HURRY! MYOB OFFERS END 16/03/07

- Keep track of the goods you buy and sell
- Manage your contact information
- Generate current and future budgets

$299 | U0169 MYOB

MYOB Accounting Plus v16

Bonus Norton Internet Security 2007[3]

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- Bill for your time the way you want to
- Manage all your banking requirements

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QuickBooks Premier 2006/07

$500 Cashback Offer[5]

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Adobe Acrobat 8.0 Standard

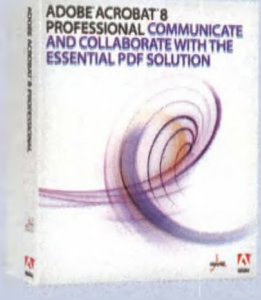
Adobe

- View, print, and search Adobe PDF files
- Combine files from multiple applications into a single PDF document

$469 | WIN | U1222

Adobe Acrobat 8 Professional

Adobe



All the features of standard edition plus:

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[1] Offer closes 30/04/07. See specially marked boxes for full terms and conditions or visit **www.smallbusinessoffers.com.au**

[2] Offer available between 01/01/07 & 21/07/07 by redemption from Filemaker. For full terms and conditions visit **filemaker.ht.com.au**

[3] Offer available between 08/01/07 & 16/03/07 by redemption from MYOB. For terms & conditions see **myob.ht.com.au**.

[4] Purchase a full version of TrendMicro Internet Security 2007 3 User between 01/03/07 & 30/04/07 and be eligible to redeem a USB Drink Warmer/Cooler from Manaccom. See **trendmicro.ht.com.au** for more details.

[5] Offer available between 08/01/07 & 18/03/07 by redemption from Quicken. For terms & conditions see **quicken.ht.com.au**

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1 - 31 March 2007

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AcerPower FH

$899

U4524

BEFORE CASHBACK YOU PAY $899

See page 06

EXCLUSIVE

$99 CASHBACK[1]

lenovo

N100 T5600

$1399

U5349

See page 04

WINDOWS VISTA BUSINESS

BONUS 80GB EXTERNAL HARD DRIVE OR 2GB USB DRIVE[2]

Windows Vista Business

Microsoft Windows Vista Business

$379 | Upgrade | U4504

$565 | Full | U4503

Office

Microsoft Office Small Business 2007

$499 | Upgrade | U1828

$749 | Full | U1827

Also available:
Microsoft Office Professional 2007
$549 | Upgrade | U1831
$849 | Full | U1830

EXCLUSIVE BONUS OFFER VALUED AT $139[3]
See page 14 for details

EXCLUSIVE BONUS OFFER VALUED AT $229[3]
See page 15 for details

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[1]Offer via redemption from Acer. See **acer.ht.com.au** for terms & conditions [2]Offer via redemption from Lenovo. See **lenovo.ht.com.au** for terms & conditions. [3]Offer closes 30/04/07. Only available to customers that have up to 4 PCs or less in their business, does not extend to small business that have a server and require installation on a server. See specially marked boxes for full terms and conditions or visit **www.smallbusinessoffers.com.au**

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MICROSOFT WINDOWS VISTA HOME PREMIUM ACADEMIC UPGRADE

For the best home computing and entertainment.

The preferred edition of Windows Vista for home desktop and mobile PCs. Delivers enhanced productivity and entertainment at home and on the go—making it easy to enjoy digital photos, music, TV, games and movies, while providing a whole new level of security and reliability on desktop and mobile PCs.

$159 | Save $20

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Store data on the go easily and securely... P11

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Check out the New Generation..... P29

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Acer 17" LCD Monitor Black

Industry best seller..... P10

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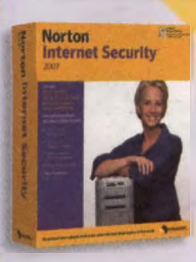
WebCode.....ACM0082



Norton Internet Security 2007 3 User

Stay protected from the latest online threats.. P41

$117 | Save $12

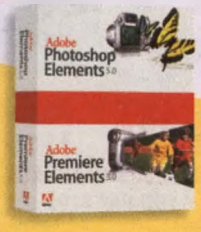
WebCode.....SYM9720

Canon Digital Camera A450 5MP

Perfect digital camera for beginners..... P20

$165 | Save $34

WebCode.....CAN0811



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Complete photo & video editing made easy.. P30

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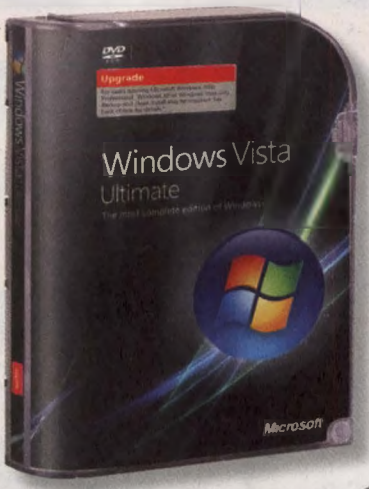
OPERATING SYSTEM

MICROSOFT WINDOWS VISTA ULTIMATE UPGRADE

Windows Vista Ultimate is the greatest Windows Vista experience available. It's got the power, security and mobility features you need for work, and the Media Center entertainment and ease you want for fun.

This edition of Windows Vista has everything you need to shift seamlessly between the worlds of play and productivity.

Ultimate Full (MSA5108) ~~$688~~



The most complete edition of Windows Vista™

$454 | Save $41

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MEDIA CREATION

ROXIO EASY MEDIA CREATOR 9

Your Music, Memories, Movies and More
Get the most out of your digital videos, music and photos. Creator 9 lets you create, manage and enjoy them the way you want, on your computer. home theatre, or TV - and even on the move with your iPod, PSP or mobile phone. With dozens of new and improved features and Blu-ray disc compatibility, Creator 9 is the essential software for your digital life.

Burn music CDs & DVDs, back up fast and copy with ease

$121 | Save $39

WebCode..... ADA9518

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Get all the power, features and advanced security you expect at work and home with Microsoft Office Ultimate 2007. Create professional documents quickly, connect to important information easily and work with others effectively.

Full (MSA6111) ~~$998~~

A complete set of tools for saving time, managing information and staying connected.

$487 | Save $62

WebCode..... MSA6109

HOME DESIGN

PUNCH! PROFESSIONAL HOME DESIGN PLATINUM VERSION 10

This updated home and landscape design software version is built on the same powerful platform as Punch! Architectural Series 4000, allowing you the flexibility to integrate Punch! PowerTools and much, much, more! Version 10 gives you even more features and enhancements:
design with Decorator Palette-change your room colours with just one click! Use Accessories to easily add art and window treatments. Also includes dormer & skylight tools

$128 | Save $22

WebCode..... PUN0019

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Two hot products for one low price. Together, these products usually retail at almost $400, so if you've ever wanted to work smarter, faster and more efficiently, now's the time!

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CA INTERNET SECURITY SUITE 2007 + DESKTOP MIGRATOR BUNDLE

CA Internet Security Suite protects you against viruses, hackers, identity thieves, spyware, spam, offensive websites and other online threats that can jeopardise your privacy, your data and your PC's performance.

$50 Cashback

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WebCode..... BUN0026

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CoreCorel® Painter™ X, the world's most powerful Natural-Media® software, offers artists and photographers professional art & design tools that are unmatched by any other product. Delivering the next-generation art studio. Corel Painter X blurs the line between traditional and digital art like never before. Complete with training videos by Painter Master Jeremy Sutton, artists can learn new techniques to create original works of breathtaking art.

Limited Edition Paint Tin Only 1000 World wide Check Website For Details

$734 | Save $65

WebCode..... COR8703

EDUTAINMENT

MINDSCAPES BRAIN TRAINER

Have fun raising the fitness of your brain to perform better at everyday tasks. Play a daily range of activities in the 10 minute "Daily Brain Training" and review your progress, or just play your choice of activities for the challenge.

Think Better, Faster, Smarter!

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WebCode..... MND1248

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The latest and most intelligent evolution of simple, one-touch control. Say goodbye forever to the wasted time and endless frustration of multiple remotes controlling multiple devices. With patented Smart State Technology, one touch is all it takes to effortlessly control up to 15 separate components.

$486 Save $213

WebCode..... LOG3601

NOTEBOOK COMPUTER

ACER TRAVELMATE 2483WXMI

Part Number	LX.TH30Y.028
Processor	Intel Centrino M 430 1.73GHz
Memory	512 MB DDR2 533MHz
Display	15.4" Wide TFT 1280 x 800
Graphics Card	Intel GMA 950
Hard Drive	80GB 5400rpm SATA
Optical Drive	DVD Super-Multi Dual Layer
Network	56K Modem, 802.11b/g & 10/100 LAN
Operating System	Ms Win Vista Home Basic

*$199 Cashback via redemption

$788* Save $211

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YOU PAY $987

WebCode..... ACN9240

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SCRAPBOOKING

WACOM GRAPHIRE4 4X5 SCRAPBOOKING STARTER KIT

The Wacom Graphire4 4x5 pen tablet is the ideal tool for enhancing digital photos, adding borders, graphics, text and special effects, to dramatically increase scrapbookers' creative options. Working digitally allows you to experiment with different combinations without affecting your original files or making costly mistakes. Give your scrapbooks the digital edge!

Advanced Kit 6x8 (WAC9981) **$236**

$127 Save $22

WebCode..... WAC9982

DIGITAL CAMERA

SONY DIGITAL CAMERA DSCN2

Snap crystal clear images and share them straight away on the DSCN2. The high resolution 3.0" LCD lets you enjoy your photos as a slide show with background music. Equipped with a precision Carl Zeiss lens and High ISO sensitivity your images will be crystal clear with reduced noise.

3x Optical Zoom

10.1 Megapixel

3" LCD Screen

NEW

$732 Save $17

WebCode..... SNY0138

WEBCAM

MICROSOFT LIFECAM NX-6000

Notebook Mobility, High Definition Video and Photos. Includes Carry Case.

Whether you're at home, in the office, or on the road, keeping in touch with friends, family, and business associates is easy with the Microsoft LifeCam NX-6000. This compact, reliable webcam is designed especially for notebook computers.

Works with Vista

$134 Save $45

WebCode..... MST8432

TRANSFER VINYL RECORDS

XP SOUND

The "XP201" Phono/Mic pre-amp provides a combination of hardware and software to achieve high quality transfer of old records and cassettes to your home desktop PC or laptop, in addition to offering a handy high quality microphone pre-amp and headphone amplifier. The included software (Win only) "Diamond Cut 32 V4.0" allows users to professionally edit their recorded audio.

Limited Stock

$96 Save $103

WebCode..... XPS0001

COLOUR PRINTING

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A4 Colour Solid Ink Printer

- Up to 85,000 pages maximum monthly duty cycle
- Print speed of 24 ppm
- First page out in 6 seconds
- Resolution 600 x 600 dpi
- Memory up to 256MB
- Adobe PostScript 3 & PCL5c
- Duplex printing
- Duplex printing

8550 (FXP8550) **$2653**

MASSIVE PRICE DROP

Environmentally Friendly & Easy to use!

$1287 Save $907

WebCode..... FXP8510

PORTABLE AUDIO

EXIGO MP3 PLAYER 1BG (250 SONGS)

Flash-based MP3 players changed the way people share their passion for music. With the Exigo MP3 Players line you can enjoy a wide range of functions and crystal clear quality of sound at a reasonable price.

2GB - 500 Songs (EXI0007) **$71**

RUN OUT PRICE!

$48 Save $40

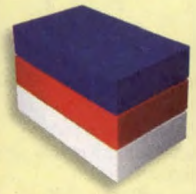
WebCode..... EXI0006

Lacie 250GB Brick Desktop Hard Drive

Crafted by the world-famous designer Ora-Ito, the new Brick expresses playfulness in a user-friendly high-performance hard drive. Stack & Play multiple LaCie Bricks together to brighten your desktop and your mood (they're even stackable with LaCie Mobile Bricks). With Hi-Speed USB 2.0 interface, it offers the fast data transfer rates required for substantial jobs like downloading digital photos, saving MP3s or transferring home videos from a camcorder.

- Stack & Play with other LaCie Brick Hard Drives
- Professional storage is now easy and fun
- Add colours to your computing life
- Store & back up music, photos, videos and office files

320GB Blue (LAC1150) $267
500GB Red (LAC1065) $344



$198 Save $51
WebCode LAC1062

LaCie 500GB Porsche USB Hard Drive

LaCie has teamed up with the renowned design agency Porsche Design GmbH to create this family of hard drives. Now you've got a stylish place to put all of your photos, music, videos and data. Setup is quick and easy. Within seconds, the LaCie Hard Drive is ready to start sharing and storing on either PC or Mac.

- Save your files, photos, MP3s & videos
- Fast interface transfer rate: up to 480Mbits/s
- Simple setup; easy-to-use
- Lightweight, durable & stackable.

250GB (LAC0094) $187
320GB (LAC1810) $256

$344 Save $155
WebCode LAC1066

See page 46 for details!

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Did you know that you can get up to 3% rebate on every order?

Compaq Presario F503AU Notebook

Processor	AMD Turion 64 2GHz Mobile
Memory (Ram)	512MB DDR2 667MHz
Video Card	nVidia Geforce Go 6150
Hard Drive	80GB 5400rpm
Optical Storage	Super Multi 8x DVD/RW
Display	15.4" WXGA
Connectivity	56K Modem, 802.11b/g & 10/100 LAN
Operating System	MS Win Vista Home Basic

$1064
WebCode COP0503
RENTSMART $13.55 PER WEEK

Compaq Presario V3230AU Notebook

Processor	AMD Turion 64 1.6GHz Mobile
Memory (Ram)	1GB DDR2 667MHz
Video Card	nVidia GeForce Go 6150
Hard Drive	80GB 5400rpm
Optical Storage	Super Multi 8x DVD/RW
Display	14.1 WXGA
Connectivity	56K Modem, 10/100 LAN
Operating System	MS Win Vista Home Basic

$1324
WebCode COP3230
RENTSMART $16.34 PER WEEK

HP Pavilion DV2222TX Notebook

Processor	Intel Core Duo 1.73GHz
Memory (Ram)	1GB DDR2
Video Card	nVidia Geforce Go 7200
Hard Drive	80GB 5400rpm SATA
Optical Storage	Super Multi 8x DVD/RW
Display	14.1" WXGA
Connectivity	56K Modem, 802.11b/g & 10/100 LAN
Operating System	MS Win Vista Home Premium

$1688
WebCode HPR2222
RENTSMART $20.82 PER WEEK

HP Pavilion DV6218TX Notebook

Processor	Intel Core Duo 2 1.83GHz
Memory (Ram)	1GB DDR2
Video Card	nVidia Geforce Go 7400
Hard Drive	160GB 5400rpm SATA
Optical Storage	Super Multi 8x DVD/RW
Display	15.4" WXGA Brightview
Connectivity	56K Modem, 802.11b/g, 10/100 LAN & BT
Operating System	MS Win Vista Business

$2348
WebCode HPR6218
RENTSMART $28.02 PER WEEK

HP Pavilion A5020 with 19" Wide LCD

Processor	Intel Pentium 4 3GHz
Memory (Ram)	512MB DDR2 533MHz
Video Card	ATI Radeon Express 1100
Hard Drive	160GB 7200rpm SATA
Optical Storage	Super Multi SATA DVD/RW
Monitor	19" Widescreen LCD
Operating System	MS Win Vista Home Basic

$1288
WebCode HPR5022
RENTSMART $16.40 PER WEEK

Compaq Presario SR5060 with 19" Wide LCD

Processor	AMD Athlon 64 Dual Core 2GHz
Memory (Ram)	1GB DDR 533MHz
Video Card	nVidia GeForce 7500LE
Hard Drive	250GB 7200rpm SATA
Optical Storage	Super Multi SATA DVD/RW
Monitor	19" Widescreen LCD
Operating System	MS Win Vista Home Premium

$1796
WebCode COP5063
RENTSMART $22.16 PER WEEK

HP Proliant ML110 G4 Server

- Part Number: 417248-011
- Processor: Intel Dual Core 915 2.8GHz
- Chipset: Intel 3000
- Memory: HP 512MB PC2-5300 Unbuffered Memory
- Storage: HP 160GB SATA Hard Drive
- Optical Drive: 48x CD-ROM Drive
- Drive Controller: 4 port SATA controller with RAID
- Comms: Broadcom 5721 Gigabit NIC
- Graphics: Integrated 2MB video controller
- Form Factor: 4U Tower
- I/O Ports: 2 Serial, 1 Mouse, 1 Graphics, 1 Keyboard, 6 USB, 1 RJ-45
- Dimensions: (HxWxD): 367 x 175 x 426mm
- Weight : 10.5kg

$1385
WebCode HOS0235
RENTSMART $17.09 PER WEEK

HP Proliant ML110 G4 Server Options

Description	Webcode	Price
HP 512MB PC2-5300 Unbuffered Memory	HOO0394	$160
HP 1GB PC2-5300 Unbuffered Memory	HOO0426	$310
HP 160GB SATA Hard Drive	HOO0366	$250
HP 250GB SATA Hard Drive	HOO0367	$320
HP 4-Hour / 13x5 Onsite / HW Support / 3 year	HPW8945	$810
HP 4-Hour / 24x7 Onsite / HW Support / 3 year	HPW9660	$1189
HP Installation for Proliant Servers (per event)	HPW4444	$528
HP G4 Lights-Out 100 Management Card Kit	HOO0395	$350

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Business Partner
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Lenovo Thinkcentre A53 Desktop

Part Number	8980A11
Processor	Intel Celeron D 346 3.06GHz
Memory	256MB 667MHz
Video Card	RC410 PCI Express
Hard Drive	800GB 7200rpm SATA
Optical Storage	CD-RW/DVD-ROM Combo
Connectivity	Gigabit Ethernet
Operating System	MS Win XP Pro

17" LCD Monitor (IBH6852) $399
19" LCD Monitor (LEM0002) $499

Monitor not included, Image for illustrative purposes only

$689 WebCode IBD4204

RENTSMART BECAUSE BUYING ISN'T $8.77 PER WEEK

Lenovo 3000 Desktop

Part Number	8258D22
Processor	AMD Athlon 64 3200+ 2.2GHz
Memory	512MB PC3200 400MHz
Video Card	VIA K8M800
Hard Drive	80GB 7200rpm SATA
Optical Storage	Dual Layer DVDRW
Connectivity	56K Modem, 10/100 Ethernet
Operating System	MS Win XP Pro

17" LCD Monitor (IBH6852) $399
19" LCD Monitor (LEM0002) $499

Monitor not included

$749 WebCode LED0019

RENTSMART BECAUSE BUYING ISN'T $9.54 PER WEEK

Lenovo 3000 Desktop

Part Number	8456F7M
Processor	Intel Pentium D 820 2.8GHz
Memory	512B DDR2 533MHz
Video Card	Intel GMA 950
Hard Drive	160GB 7200rpm
Optical Storage	Multi Burner Plus 16x
Connectivity	10/100 Ethernet
Operating System	MS Win XP Pro

17" LCD Monitor (IBH6852) $399
19" LCD Monitor (LEM0002) $499

Monitor not included

$797 WebCode LED0015

RENTSMART BECAUSE BUYING ISN'T $10.15 PER WEEK

Lenovo 3000 Desktop

Part Number	738742M
Processor	Athlon 64 X2 4200+ 2.2GHz
Memory	512 MB PC2-4200 DDR2 533MHz SDRAM
Video Card	ATI Radeon X300 SE 128MB
Hard Drive	250GB SATA 7200rom
Optical Storage	Multi Burner Plus 16x
Connectivity	Gigabit Ethernet
Operating System	MS Win XP Pro

17" LCD Monitor (IBH6852) $399
19" LCD Monitor (LEM0002) $499

Monitor not included

$1036 WebCode LED0014

RENTSMART BECAUSE BUYING ISN'T $13.19 PER WEEK

Lenovo C200 Notebook

Part Number	89222GM
Processor	Celeron M 430 1.73GHz
Memory	512MB PC-5300 667MHz
Video Card	GMA 950
Hard Drive	60GB 5400rpm SATA
Optical Storage	Dual Layer DVD/RW
Display	15" XGA 1024x768
Connectivity	56K Modem, 802.11b/g & 10/100 LAN
Operating System	MS Win XP Pro

$1054 WebCode LEN0031

RENTSMART BECAUSE BUYING ISN'T $13.42 PER WEEK

Lenovo N100 Notebook

Part Number	0689CFM
Processor	Intel Core 2 Duo T5600 1.83GHz
Memory	512MB PC2-5300 DDR2 SDRAM
Video Card	Intel GMA 950
Hard Drive	80GB 5400rpm SATA
Optical Storage	CD-RW/DVD-RW Multiburner
Display	14.1 WXGA 1280x800
Connectivity	56K Modem, 802.11b/g, 10/100 LAN & BT
Operating System	MS Win XP Pro

FREE Bag & Mouse

$1742 WebCode IBB1231

RENTSMART BECAUSE BUYING ISN'T $21.49 PER WEEK

Lenovo N100 Notebook

Part Number	0768CFM
Processor	Intel Core Duo T5500 1.66GHz
Memory	512MB DDR2 667MHz
Video Card	NVIDIA GeForce Go 7300
Hard Drive	80GB 5400rpm SATA
Optical Storage	CDRW/DVDRW Combo
Display	15.4" WXGA 1280x800
Connectivity	56K Modem, 802.11b/g, 10/100 LAN & BT
Operating System	MS Win XP Pro

FREE Bag & Mouse

$1862 WebCode IBB1233

RENTSMART BECAUSE BUYING ISN'T $22.97 PER WEEK

ThinkPad Z61m Notebook

Part Number	9451NTM
Processor	Intel Core 2 Duo T5600 1.83GHz
Memory	512MB 667 MHZ DDR2 SDRAM
Video Card	ATI Mobility Radeon X1300 64MB
Hard Drive	80 GB 7200rpm SATA
Optical Storage	Super Multi SATA DVD/RW
Display	15.4" WSXGA+ 1680x1050
Connectivity	56K Modem, 802.11b/g, Gigabit LAN & BT
Operating System	MS Win XP Pro

Built in Finger Print Reader

$2162 WebCode IBT9674

RENTSMART BECAUSE BUYING ISN'T $26.67 PER WEEK

LaCie d2 16x External DVD±RW with LightScribe

Combining four DVD formats in one device, this all-in-one rewritable drive provides Hi-Speed USB 2.0 and FireWire ports for easy connection to any PC or Mac, making it the most versatile drive available. Sporting LaCie's original aluminium d2 Design, it can be integrated into standard 19" computer and audio equipment racks or stand alone on a desktop. This powerful drive features innovative LightScribe labelling technology, which burns custom, silkscreen-quality, precise images directly onto your discs using the very same laser that burns data.

- Records to Double Layer DVD+R/DVD-R, DVD±R/RW and CD-R/RW
- Masters up to 8.5GB DVD-Videos from your desktop
- Provides Hi-Speed USB and FireWire for both PCs and Macs
- Features LightScribe for direct disc custom labelling

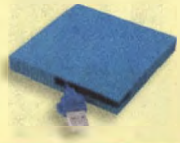
$196 Save $43

WebCode LAC0978

LaCie 60GB Skwarim USB Hard Drive Blue

Brighten your computing world with the lively colours and high fashion look of the LaCie Skwarim. The original creation of award-winning designer Karim Rashid, its futuristic design is complemented by the feel of its compact, soft-touch square case. The Skwarim offers a great amount of storage in a very small ultra-portable device. Back up and exchange thousands of photos, songs, files and even video clips with this easy-to-use hard drive with an integrated USB cable.

- High capacity in the palm of your hand
- Store and transport photos, videos, music & files
- Unique creation of world-renowned designer Karim Rashid



$254 Save $45

WebCode LAC0968

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Apple Hardware

Apple Ipod Shuffle

The world's smallest digital music player and just $113, the 1GB iPod shuffle lets you wear up to 240 songs on your sleeve. Or your lapel. Or your belt. Clip on iPod shuffle and wear it as a badge of musical devotion.

$113 Save $6
WebCode APP0245

Apple iPod Nano 4GB Blue

With its new anodized aluminium enclosure and rounded edges, iPod Nano looks as dazzling as it feels. And it's sleeker than ever — 3.5 inches tall, 1.6 inches wide, and just over quarter of an inch thin. Play your music even longer between charges — up to a full day. And recharge your iPod to 80% capacity in just 90 minutes. Your album art, photos, and more gain even more brilliance thanks to a 1.5-inch colour display that's 40% brighter than before.

Pink (APP0243) $288
Green (APP0242) $288
Silver (APP0235) $288

$288 Save $11
WebCode APP0236

Apple iPod 30GB Black

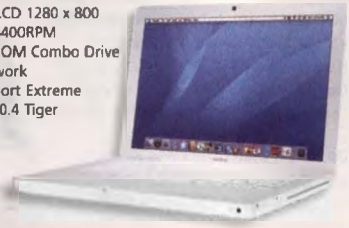
With enough room for your favourite music and videos, this iPod has both sound and vision. Of course, it also boasts stamina up to 20 hours of battery life, generous capacity 30GB of storage, a great personality (intuitive, customisable menus) and a touch of genius (the Click Wheel). In other words, iPod makes an ideal companion.

White (APP0237) $368

$368 Save $12
WebCode APP0238

Apple MacBook

Processor	1.83GHz Intel Core Duo 2
Memory	512MB 667MHz DDR2
Display	13.3" Wide LCD 1280 x 800
Hard Drive	60GB SATA 5400RPM
Optical Drive	CDRW/DVDROM Combo Drive
Network	Gigabit Network
Wireless	54Mbps Airport Extreme
Software	Mac OS X v10.4 Tiger



PRICE MAY DROP! Call For Pricing

$1676 RENTSMART BECAUSE BUYING ISN'T $20.68 PER WEEK
WebCode APP0253

Apple MacBook Pro

Processor	2.16GHz Intel Core 2 Duo
Memory	1GB 667MHz DDR2
Display	15.4" Wide LCD 1440 x 900
Hard Drive	120GB SATA 5400RPM
Optical Drive	6x Dual Layer Super Drive
Network	Gigabit Network
Wireless	54Mbps Airport Extreme
Software	Mac OS X v10.4 Tiger

PRICE MAY DROP! Call For Pricing

$2987 RENTSMART BECAUSE BUYING ISN'T $34.95 PER WEEK
WebCode APP0151

Apple iMac

Processor	2.16GHz Intel Core Duo 2
Memory	1GB 667MHz DDR2
Display	12" TFT Active Matrix
Hard Drive	250GB SATA
Optical Drive	Dual Layer DVDRW
Network	Gigabit Network
Wireless	54Mbps Airport Extreme
Graphics	128MB ATI Radeon X1600
Software	Mac OS X v10.4 Tiger

PRICE MAY DROP! Call For Pricing

$2217 RENTSMART BECAUSE BUYING ISN'T $26.45 PER WEEK
WebCode APP0230

Apple Mac Mini

Processor	1.83GHz Intel Core Duo
Memory	512MB 667MHz DDR2 SDRAM
Hard Drive	80GB Serial ATA hard drive
Optical Drive	Double-layer SuperDrive
Connectivity	Built-in AirPort Extreme and Bluetooth 2.0
Graphics	Intel GMA 950 graphics processor with 64MB
Software	Mac OS X 10.4 Tiger

PRICE MAY DROP! Call For Pricing

$1226 RENTSMART BECAUSE BUYING ISN'T $15.61 PER WEEK
WebCode APP0233

Australia's Best Prices on Apple Hardware

Apple TV

iTunes to Apple TV, wire free.

Apple TV connects to your TV via an HDMI port or component video and audio ports. Its built-in, super fast 802.11 wireless capability syncs your iTunes library to any Mac or PC in the house. Best of all, what's on Apple TV stays in sync: Anytime you change your library in iTunes, it changes on Apple TV — wirelessly, automatically.

$438 Save $11
WebCode APP0259

Apple Airport Extreme

Introducing the new AirPort Extreme Base Station, the perfect wireless solution for home, school and business. As it blankets your space with a blazing fast, secure wireless network, it opens up a world of possibilities for home entertainment, backups, printing and more.

$242 Save $17
WebCode APP0261

Apple Final Cut Express HD

Discover the advanced moviemaking power of Final Cut Express HD. Capture and edit DV or HDV video, add dynamic titles and graphics using LiveType 2, then score your movie using Soundtrack 1.5.
Now available as a Universal application, this version runs natively on both Intel- and PowerPC-based Macs.

$385 Save $44
WebCode APP0263

AppleCare Protection Plans

HOT PRODUCT

Give yourself long-term peace of mind by extending the coverage on your Mac to three years from your computer's purchase date. The comprehensive AppleCare Protection Plan includes expert telephone tech support; web-based support resources; onsite service for desktop computers; global repair coverage; repairs performed by Apple-authorized technicians who use only genuine Apple parts; and powerful TechTool Deluxe diagnostic tools from Micromat.

AppleCare protection plan for Apple TV (APP0260) $69
AppleCare protection plan for Apple Macbook Pro (APP0125) $539
AppleCare protection plan for Apple Mac Mini (APP0095) $209
AppleCare protection plan for Apple iPod (APP0029) $89
AppleCare protection plan for Apple iMac (APP0152) $249

Apple .Mac

Mac. Effortlessly share everything you create in iLife with one-click web publishing and Photocasting, communicate through ad-free email, and back up your important files with powerful backup software.

$132 Save $8
WebCode APP0268

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Call 1300 658 600 or visit www.csw.com.au as prices may change due to the daily fluctuations and online discounts. Save price is calculated off the RRP

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Acer Travelmate 2483WXMI

Part Number	LX.TH30Y.028
Processor	Intel Centrino M 430 1.73GHz
Memory	512 MB DDR2 533MHz
Display	15.4" Wide TFT 1280 x 800
Graphics Card	Intel GMA 950
Hard Drive	80GB 5400rpm SATA
Optical Drive	DVD Super-Multi Dual Layer
Network	56K Modem, 802.11b/g & 10/100 LAN
Operating System	MS Win Vista Home Basic

*$199 Cashback via redemption

$788 | Save $211
AFTER $199 CASHBACK
YOU PAY $987
WebCode ACN9240

*Cashback expires March 31st. For more information visit www.csw.com.au

RENTSMART BECAUSE BUYING ISN'T $12.57 PER WEEK

ASUS F3F Notebook

Processor:	1.66GHz Intel Core Duo
Memory:	512MB DDR 667 MHz
Display:	15.4" Wide TFT 1280 x 800
Graphics Card:	Intel GMA950
Hard Drive:	80GB SATA 5400RPM
Optical Drive:	DVDRW Drive
Network:	Gigabit Network
Wireless:	Intel 54Mbps
Operating System:	Microsoft Windows Vista Premium Home

FREE Bag & optical mouse

$1527
WebCode ASU0665

RENTSMART BECAUSE BUYING ISN'T $18.84 PER WEEK

Acer Travelmate 3260AWXMI

Part Number	LX.TGZ0Y.003
Processor	Intel Core Solo T1350 1.86GHz
Memory	512MB PC-5300 667MHz
Display	14.1" WXGA 1280 x 800
Graphics Card	Intel GMA 950
Hard Drive	80GB 5400rpm SATA
Optical Drive	Dual Layer DVD/RW
Network	56K Modem, 802.11b/g & 10/100 LAN
Operating System	MS Win Vista Home Basic

*$99 Cashback via redemption

$1075 | Save $124
AFTER $99 CASHBACK
YOU PAY $1174
WebCode ACN9243

*Cashback expires March 31st. For more information visit www.csw.com.au

RENTSMART BECAUSE BUYING ISN'T $14.95 PER WEEK

ASUS F3JP Notebook

Processor:	1.66GHz Intel Core Duo
Memory:	1GB DDR 667 MHz
Display:	15.4" Wide TFT 1280 x 800
Graphics: Card	ATI X1700
Hard Drive:	80GB SATA 5400RPM
Optical Drive:	DVDRW Drive
Network:	Gigabit Network
Wireless: Intel	54Mbps
Operating System:	Microsoft Windows Vista Premium Home

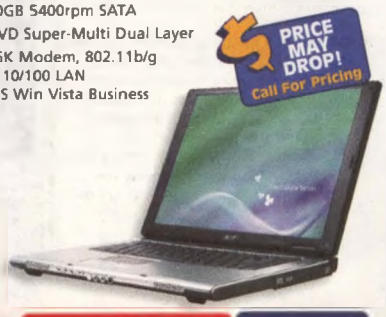
FREE Bag & optical mouse

$1798
WebCode ASU0622

RENTSMART BECAUSE BUYING ISN'T $22.18 PER WEEK

Acer Travelmate 4201AWLMI

Part Number	LX.TH80Z.037
Processor	Intel Core Duo T2050 1.6GHz
Memory	512MB PC4200 DDR2 SDRAM
Display	15.4 Active WXGA 1280 x 800
Graphics	Intel GMA 950
Hard Drive	80GB 5400rpm SATA
Optical Drive	DVD Super-Multi Dual Layer
Network	56K Modem, 802.11b/g & 10/100 LAN
Operating System	MS Win Vista Business



$1467
WebCode ACN9239

RENTSMART BECAUSE BUYING ISN'T $18.01 PER WEEK

ASUS F3JV Notebook

Processor:	2GHz Intel Core Duo
Memory:	1GB DDR 667 MHz
Display:	15.4" Wide TFT 1280 x 800
Graphics Card:	NVIDIA GeForce Go 7600
Hard Drive:	120GB SATA 5400RPM
Optical Drive:	DVDRW Drive
Network:	Gigabit Network
Wireless:	Intel 54Mbps
Operating System:	Microsoft Windows XP Pro

FREE Bag & optical mouse

$2422
WebCode ASU0621

RENTSMART BECAUSE BUYING ISN'T $28.89 PER WEEK

Logitech V20 Notebook Speakers

Finally, get great audio from your laptop with Logitech V20 Notebook Speakers. The USB port provides power and digital quality audio—no other cables necessary.

$82 | Save $18
WebCode LOG3508

Belkin Universal Notebook Travel Surge

The Belkin Notebook Travel surge protector, featuring ultra-compact in-line design makes it perfect for both business and personal travel. Compatible with 3-prong adapters available on Dell, Compaq,and many other laptop computers.

2 prong version (BEL0278) $67

$67
WebCode BEL0277

Maxtor OneTouch Mini Portable 120GB External HDD

- Ideal storage and backup solution for people on the go
- USB 2.0 and 1.1
- Maxtor OneTouch button - the easy way to make backup copies of your files
- Quick and easy installation
- Plug and play storage

$232 | Save $17
WebCode MXT0116

Notebooks

AUSTRALIA'S BEST PRICES at CITY SOFTWARE 1300 658 600

PDA's & Satellite Navigation

HP IPAQ Accessories

HP Auto Adapter for Ipaq (COQ6072) $49

HP Ipaq Pocket Pc Cradle (COQ6046) $54

HP Ipaq Next Day Exchange HW Support 3 year (HPW9187) $169

HP AC Adapter Kit for iPAQ RX5765 (COQ6079) $49

HP Ipaq RX5000 Series Stylus Kit (COQ6091) $20

HP Ipaq Bluetooth Foldable Keyboard (COQ6015) $150

PalmOne Accessories

Palm Treo 680 Stylus 3 Pack (USR6803) $18

Palm Treo 680 Leather Holster (USR6801) $29

Palm Treo 680 Cradle (USR6509) $69

Palm Travel Charger Kit (USR4989) $34

Palm Vehicle Power Charger (USR4990) $23

Palm Treo Replacement Headset (USR6507) $15

Palm Treo Bluetooth Headset (USR6510) $86

TomTom Accessories

TomTom Go Car Connect (TOM0086) $239

TomTom Go Ipod Connect & Audio Cable (TOM0085) $36

TomTom Go Remote Control (TOM0088) $36

TomTom Go Additional Mount Kit (TOM0083) $36

Tom Tom Go External Antenna (TOM0074) $36

TomTom Go Sd Map Of North America (TOM0095) $299

TomTom Go Sd Map Of Western Europe (TOM0089) $299

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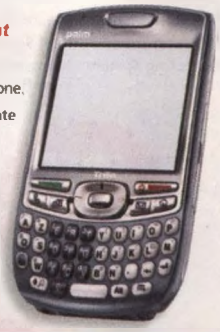
Palm Treo 680 Smartphone

Say hello to the Palm Treo 680 Smartphone. It's your phone along with email, messaging, and web access. Not to mention your contacts, calendar, photos, and songs. Sounds like a lot. And it is. But everything's so easy to learn that you'll actually use it, which makes it anything but a typical phone.



Here are just some of the things that make the Palm Treo 680 so amazing

Phone—enjoy easy-to-use features such as multi-party conference calling and speakerphone.

Email—send and receive email from corporate and personal email accounts, including Gmail and Yahoo!.

Web—download web sites fast using the award-winning Blazer web browser. With a convenient touchscreen, its on-the-go web access you'll actually use.

Messaging—fire off a text message, or send photos and videos complete with audio captions. Plus, see the whole conversation in a chat-style view.

$793 WebCode USR6800 — RENTSMART BECAUSE BUYING ISN'T $10.10 PER WEEK

I-Mate K-JAM Pocket PC Smartphone

The i-mate K- JAM Pocket PC will provide superior corporate email capabilities. With Windows Mobile 5.0 corporations can be confident mobile email will be delivered to all their mobile professionals from this quality phone and innovative mobile office communicator. The new Windows Mobile 5.0 platform allows for scalable and cost-effective mobile messaging supported by Exchange 2003 out of the box, whilst your company's networks, data and applications are protected.

- Microsoft Windows Mobile 5.0
- Quad Band Mobile Phone
- Built in QWERTY Keyboard
- Bluetooth Compatible
- MiniSD Card Expansion
- 64K Colour Screen
- Built in WIFI 802.11 B/G/E
- 1.3Megapixel Camera
- Integrated Antenna

$924 WebCode CEL0001 — RENTSMART BECAUSE BUYING ISN'T $11.76 PER WEEK

O2 XDA Atom Life Smartphone

NEW

Operating system:	Windows Mobile 5.0
Camera:	2-megapixel, CMOS
Connectivity:	3G, HSDPA, WiFi, Bluetooth, USB, IrDA, miniSD
Processor:	Intel Xscale PXA 270 processor
Speed:	624 MHz
Dimensions:	58x102x18.5 mm
Weight:	150 g
Display:	2.7" touch screen, 240x320 pixels and 65K colours

$627 WebCode XDA7000 — RENTSMART BECAUSE BUYING ISN'T $7.98 PER WEEK

HP Ipaq RX5765 Travel Companion

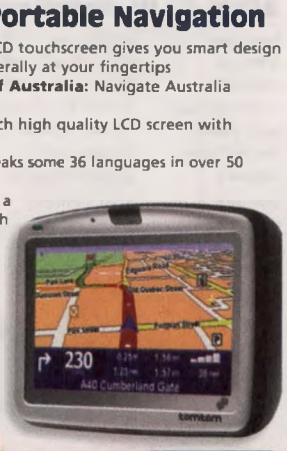
Slim and stylish this GPS navigator combines personal entertainment features and travel assistant options so you can make the most of all your travels.

- Microsoft Windows Mobile 5.0 means improved productivity with more efficient data management. Windows Media Player 10 Mobile lets you download and enjoy MP3s and videos, as well as access streaming audio, video and Internet radio.
- TomTom Navigator 6 with your choice of regional maps provides accurate turn-by-turn visual and voice guidance straight to your destination.
- 1 GB flash ROM, 64MB RAM - ample memory for storing data, contacts, music and video.
- Your own personal travel assistant - integrated Worldmate travel software saves you time money and stress.

$666 WebCode COQ0143 — RENTSMART BECAUSE BUYING ISN'T $8.48 PER WEEK

TomTom Go 710 Portable Navigation

- **Easy to use:** Extra wide 4" LCD touchscreen gives you smart design and easy to use navigation literally at your fingertips
- **SD Card Containing Maps of Australia:** Navigate Australia door-to-door
- **Extra wide LCD screen:** 4 inch high quality LCD screen with crystal-clear 3D graphics
- **Clear spoken instructions:** Speaks some 36 languages in over 50 different voices
- **Hands-free calling:** Doubles as a hands-free car kit using Bluetooth technology. So you can make & receive calls as you drive with just a touch of the screen
- **Smart extras:** iPod control, home dock and much more besides.



$868 WebCode TOM0003 — RENTSMART BECAUSE BUYING ISN'T $11.05 PER WEEK

HP Ipaq HW6965 Mobile Messenger

- The HP iPAQ hw6965 Mobile Messenger provides the features and solutions you need for an outstanding mobile e-mail and messaging experience.
- Having the ability to read, respond to, and manage e-mails while you're on the road or in long meetings, has a significant impact on your ability to stay productive.
- The HP iPAQ Mobile Messenger provides all the essentials to keep your business running when you are away from the office: phone, e-mail, and more secure access to business-critical information.
- Instant messaging allows you to communicate in real time to get answers or make decisions fast, and view the online and offline status of your contacts.

$1136 WebCode COQ0200 — RENTSMART BECAUSE BUYING ISN'T $14.46 PER WEEK

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Call 1300 658 600 or visit www.csw.com.au as prices may change due to the daily fluctuations and online discounts. Save price is calculated off the RRP.

tomtom hp invent O2

Comsol SecureID Drives

The Comsol SecureID drive features a unique security function that uses PC authorisation to secure your personal data. One time setup for authorised computers eliminates the cumbersome task of entering a password each time you need to view or retrieve data from the flash drive. The Comsol SecureID requires no software installation and leaves no trace on any computer.

- High-speed USB 2.0 data transfer
- One time setup
- Password free access via PC authorisation
- Data is auto secured when plugged into an unauthorised computer
- Pre-loaded software
- Traceless use on any PC
- SecureID feature supports Windows 2000(SP4)/XP
- Lifetime warranty

512MB (COM0311) $35
1GB (COM0312) $55

NEW

- Traceless use on any PC
- Password free access via PC authorisation

2GB $89 | Save $10
WebCode COM0313

Comsol USB 2.0 flashIT2 Flash Drive

These pocket USB 2.0 flashIT2 Storage Drives plug directly into any standard USB port and are compatible with both PC and Macs.

2GB (COM0109) $49
4GB (COM9162) $118
8GB (COM0315) $183

1GB $25 | Save $5
WebCode COM0108

Comsol USB QuickLink Cables

Assures that you will always have the right connection. Designed for the mobile traveller, the QuickLink cables provide you with 5 different USB or 3 different IEEE1394 FireWire cable configurations for your peripherals.

- Detachable Connectors for added convenience
- Foil and Braid Shielding to reduce EMI/RFI interference
- Includes connector carry case

$24 | Save $6
WebCode COM0072

GoldX 2m USB 2.0 Camera Kit 12-in-1 cable

HiComprising a two-metre connector cable, a wide selection of USB connectors the Camera Kit 12-in-1 cable ensures a camera user is never found without the right connection. Whether connecting to a camera, PDA, mobile phone, printer or scanner, the appropriate USB socket is always available.
Compatible with most popular brands of camera including Toshiba, Kodak, Canon and more.

$30 | Save $5
WebCode COM0316

GoldX 2m USB 2.0 Network Kit 5-in-1 Cable

For the busy road-warrior, making the right connection for their notebook is essential. Unfortunately, lack of standardisation means that network connections can vary from location to location, requiring the carrying of multiple leads. Computer to USB Hub, Hub to PDA, PDA to mobile phone – all are catered for with the Network Kit 5-in-1.

$22 | Save $7
WebCode COM0317

Comsol USB VoIP Phone

Used in conjunction with Skype or similar software, the Comsol USB VoIP Phone offers you a complete free Internet telephony solution.

- SKYPE ready – talk for free with other Skype users
- Works with most leading VoIP providers
- Make huge savings on local, STD and international calls
- A-Tick Approved

$45 | Save $15
WebCode COM0101

GoldX 5m USB 2.0 Repeater Cable

Extend the distance of your USB peripherals beyond the maximum USB specification of 5 metres.

- Foil and Braid Shielding To Reduce EMI/RFI Interference
- Designed For High Speed Transmissions For Optimal Performance
- Flexible Cable
- Premium Quality
- Gold Connectors

$42 | Save $7
WebCode COM0211

GoldX USB to RS232 Serial Converter

Allows you to connect serial devices to a USB port on a computer.

- Easy to Install
- Full Plug-n-Play
- Supports over 1Mbps data transfer rate
- Supports remote wake-up and power management

$46 | Save $9
WebCode COM0212

GoldX USB to IEEE1284 Parallel Converter

USB to parallel converter cable that allows you to connect an IEEE-1284 parallel printer to a USB port on a computer.

- IEEE-1284 Nibble Mode Compatible
- Bus Powered (From PC's USB Host Adapter via Connecting Cable)
- Foil and Braid Shielding To Reduce EMI/RFI Interference

$42 | Save $7
WebCode COM0213

Bluetooth Adapter – 100m

A quick and easy solution for users wanting to add Bluetooth capability to their desktop or notebook.

- Enable Bluetooth connectivity on a notebook or desktop PC
- Operation range up to 100m (limited conditions)
- Spectrum - FHSS (Frequency Hopping Spread Spectrum)
- Frequency Band 2.4GHz band (2400MHz-2483.5MHz)
- Ultra-slim design

$37 | Save $13
WebCode COM0314

Comsol ServerLink Altitude KVM

The The ServerLink Altitude offers a 19" rackmountable solution with PS/2 & USB support for your server and console. With its independent cascade port, multiple units can be daisy-chained up to 16 levels without losing any ports. Its fully featured, menu - driven OSD offers more intuitive and convenient control.

- USB and PS/2 interface support on both console and server side
- Direct channel selection and operation using front-panel push buttons and keyboard hotkeys
- Independent cascade port
- 15 pin high density connectors for simple cable management
- Robust and durable in metal enclosure
- Cascadable to control up to 256 servers

USB and PS/2 Compatible

8 Port $447 | Save $52
WebCode COM9154

16 Port $687 | Save $62
WebCode COM9155

USB Accessories & Cables

Did you know that you can get up to 3% rebate on every order?
3% rebate smart BUY club
See page 46 for details!

Spacedec Acrobat Swing Arm LCD Mount - Bolt Through

- Suits LCD Flat Panel
- Displays from 12" (30cm) to 22" (56cm)
- Suits 75mm x 75mm (3"x 3") and 100mm x 100mm (4"x 4") mounting hole patterns

*Monitor not included.

$207 Save $22

WebCode ATD0004

Spacedec Acrobat Articulated LCD Mount - Desk Clamp

- Suits LCD Flat Panel Displays from 12" (30cm) to 22"(56cm)
- Suits 75mm x 75mm (3"x 3") and 100mm x 100mm (4" x 4") mounting hole patterns
- Supports a maximum weight of 9kg (19.8lbs)

*Monitor not included.

$257 Save $13

WebCode ATD0005

Spacedec D-Horizontal LCD Monitor Stand

- Suits 2 LCD Flat Panel Displays from 12" (30cm) to 22" (56cm)
- Suits 75mm x 75mm (3"x 3") and 100mm x 100mm (4" x 4") mounting hole patterns
- Supports a maximum weight of 11.5kg (25.3lbs) each

*Monitor not included.

$440 Save $25

WebCode ATD0006

LG Monitor 17" LCD L1719SSF Silver

Narrow and Slim Design.
Excellent picture quality and control.

Brightness: 300cd/m²
Contrast Ratio: 1400 : 1
Viewing Angle: 160/160
Response Time: 8ms
Resolution: 1280 x 1024
Input Ports: RGB Port (15Pin D-Sub)
Wall Mount Type: VESA
Warranty: 3 Years

$255 Save $44

WebCode LGE0092

Acer Monitor 17" LCD AL1716B Black

Incorporating the latest in LCD technology, the Acer AL1716B offers the best in visibility, performance and design for today. With enhanced contrast and brightness the Acer AL1716B surpasses the competition, and offers a "viewing pleasure" which is second to none.

$268 Save $131

WebCode ACM0062

Viewsonic Monitor 17" LCD VA703B Black

ViewSonic's reliable performer delivers on a promise of quality standards like 300cd/m2 of brightness and 700:1 contrast ratio for stunning, bright images. The VA703b features a 8ms video response time that produces crystal-clear graphics and HD quality video for full brilliant, detailed color. Simplicity is executed through its clean lines and slim bezel. The VESA wall mount makes the VA703b an unobtrusive integration to any decor.

$288 Save $27

WebCode VIE3146

Benq Monitor 17" LCD FP73G Silver

Offering a crisp and clean form factor, the FP73G features a side bezel width of just 12mm. The ultra-narrow bezel means that when multiple displays are placed side-by-side, the distance between screen images is shrunk to a mere 24mm. The result is greater productivity and convenient viewing of large amounts of data, making BenQ's display ideal for professional applications such as finance, health care and research, and communications centres.

$292 Save $57

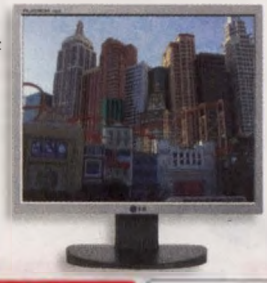
WebCode BEN1075

For our complete range list of monitors visit www.csw.com.au/lcdmonitors

LG Monitor 19" LCD L1952SSF Silver

World first picture enhancing Chip for LCD Monitor. Real Colour Management (RMC) express natural colours.

Brightness: 300cd/m²
Contrast Ratio: 1400:1
Viewing Angle: 160/160
Response Time: 8ms
Resolution: 1280 x 1024
Input Ports: RGB Port (15 Pin D-Sub)
Wall Mount Type: VESA
Warranty: 3 Years



$335 Save $64

WebCode LGE0088

Viewsonic Monitor 19" LCD VA903 Silver

The VA903m features a super-fast 8ms video response time that delivers crystal clear graphics and seamless video for full brilliant, detailed colour. This affordable and reliable LCD performs on the Viewsonic promise of quality standards with 300 cd/m2 of brightness and 700:1 contrast ratio for stunning, bright images. Its design is shear simplicity executed through its clean lines, slim bezel and minimalist footprint. Packed with a powerful OnView control interface and OSD lock function, precise performance is always a priority. The stylish VA903m LCD display is an ideal choice for SOHO, education and government users

$345 Save $34

WebCode VIE3151

Acer Monitor 19" LCD Widescreen AL1916WD Silver

Everything is bigger and better on the Acer AL1916WD. The Panoramic viewable display is ideal for watching DVD movies – transporting you from your home into a small cinema. You will also be able to display 2 full pages of Microsoft Office Applications, do 3D drawing, IT programming, Financial reports and great Internet browsing.

$348 Save $351

WebCode ACM536

LG Monitor 19" LCD Widescreen L194WT-SF Silver

- World first picture enhancing chip for LCD monitor
- Real Colour Mangement(RMC) express natural colours
- Adaptive Colour and Contrast Enhancement(ACE) function to enhance brightness & contrast
- Excellent picture quality and control
- Narrow and Slim Design
- F-Engine
- High Contrast Ratio

$367 Save $62

WebCode LGE0091

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ViewSonic acer LG

Maxtor OneTouch III

- Simple Maxtor user-interface for drive management, security and backup scheduling
- System Rollback – rolls your system state back to a an earlier better point in time while keeping data current
- Sync-automatic synchronization of data
- Maxtor OneTouch button - the easy way to make backup copies of your files
- Plug and play storage
- Quick and easy installation

One Touch III (USB)			
Size	Webcode	Price	Save
200GB	MXT0139	$219.00	$10.00
320GB	MXT0141	$267.00	$12.00
500GB	MXT0138	$429.00	$20.00

One Touch III Combo (USB & FW 400)			
Size	Webcode	Price	Save
320GB	MXT0210	$667.00	$32.00
500GB	MXT0212	$454.00	$15.00
750GB	MXT0213	$288.00	$11.00

One Touch III Triple (USB, FW 400 & FW 800)			
Size	Webcode	Price	Save
320GB	MXT0346	$317.00	$12.00
500GB	MXT0349	$461.00	$38.00

2.5" Portable Solution

Maxtor OneTouch Mini Edition Portable External HDD

- Ideal storage and backup solution for people on the go
- USB 2.0 and 1.1
- Maxtor OneTouch button - the easy way to make backup copies of your files
- Quick and easy installation
- Plug and play storage

60 GB	100 GB	120 GB	160 GB
$157	$218	$239	$388
Save $12	Save $11	Save $10	Save $11
WebCode MAX0083	WebCode MAX0084	WebCode MXT0116	WebCode MXT0017

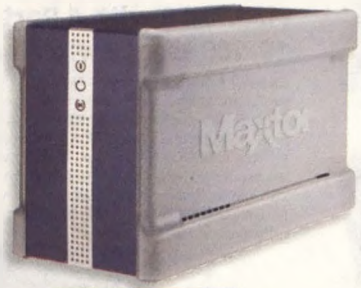
Maxtor OneTouch III Turbo

- User-configurable RAID 0 and RAID 1
- FireWire 800 FireWire 400 USB 2.0 and 1.1
- PC and Mac compatible
- Maxtor OneTouch button – backup
- Maxtor DriveLock protects contents of drive if lost or stolen
- Cool operation and modular design for easy stacking
- Plug and play storage
- Creates historical backup versions with comprehensive system and data restore to a point in time

Up to 1.5 Terabyte

600GB	1 TB	1.5 TB
$572	$932	$1098
WebCode MXT0351	WebCode MXT0351	WebCode MXT0354
RENTSMART BECAUSE BUYING ISN'T $7.28 PER WEEK	RENTSMART BECAUSE BUYING ISN'T $11.86 PER WEEK	RENTSMART BECAUSE BUYING ISN'T $13.98 PER WEEK

Maxtor Shared Storage II 1TB



- Store and automatically backup the data on networked computers to one location for MAC and PC
- Up to 1.5TB capacity with simple user interface RAID 1 and 0
- 1 USB port for connecting and sharing printers and additional hard drives
- Gigabit Ethernet
- Media server plays back digital photos, music and video to networked media/ entertainment systems without a computer having to be on
- Access files from any networked PC, Mac or compatible networked media/ entertainment system

320 GB	500 GB	1 TB
$476	$675	$1098
Save $11	RENTSMART $8.59 PER WEEK	RENTSMART $14.90 PER WEEK
WebCode MXT0352	WebCode MXT0353	WebCode MXT0350

Maxtor Basics External Hard Drives

Easy add-on storage for home or office. Instantly expand your storage to hold your digital photos, music, and data files. PC compatible.

- Easy add-on storage for home or office
- Easy installation
- Perfect for digital photos, music, and data files
- USB 2.0 and 1.1 compatibility
- Up to 500GB capacities
- PC compatible
- Compact design includes stand for vertical orientation

160GB (MXT0209) $171
320GB (MXT0320) $249

Great Value

500 GB
$427
Save $27
WebCode MXT0208

Maxtor Ultra Series Hard Drive Kit

Satisfy your system's need for speed and capacity with the Maxtor Ultra Series Hard Drive kit. Up to 20% faster than standard 7200 RPM hard drives, the drive is designed for power users who demand the ultimate gaming, digital video, and audio experience. Featuring an 8MB cache, fluid dynamic bearing motor, and Ultra ATA/133 interface.

HOT PRODUCT

200 GB
$162
Save $7
WebCode MXT0057

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Storage - Hard Drives

Netgear ProSafe VPN Firewall 25

NETGEAR's FVS124G ProSafe Dual WAN VPN Firewall provides maximum performance, security, and reliability for small and remote offices. Four auto-sensing Gigabit ports deliver fast LAN connectivity; SPI firewall with 256-bit AES or 3DES encryption protects your network. 25 VPN connections with hardware-assisted throughput for secure remote links.

$316 Save $103
WebCode NTG7354

Netgear Prosafe 802.11g Wireless Access Point

Affordable, standards-based enterprise-level functionality with robust security, integrated IEEE 802.3af PoE and SNMP. Wi-Fi Certified with speeds up to 108 Mbps, providing reliable access for the mobile workforce.

$202 Save $57
WebCode NTG7302

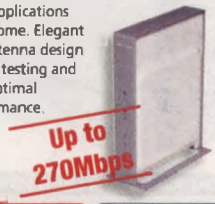
Netgear ProSafe 24 Port 10/100 Smart Switch

NETGEAR's ProSafe Smart Switch affordably delivers built-in gigabit power and fiber flexibility at an attractive price. With 24 10/100 ports, two Gigabit Ethernet ports, and an SFP slot, growing business networks can keep up with expanding network needs. In addition, a Web-browser interface offers simple switch management, making it easy to configure ports, trunks, VLANs, and prioritisation.

$326 Save $173
WebCode NTG7304

Netgear RangeMax NEXT Wireless Router (WNR834B)

RangeMax NEXT wireless routers and adapters deliver maximum bandwidth and wireless coverage up to 270Mbps. Steady-Stream connections enable simultaneous use of voice, data, and multimedia applications throughout the home. Elegant preset internal antenna design and 11n-True-Test testing and tuning, ensures optimal out-of-box performance.



$206 Save $73
WebCode NTG7935

Netgear RangeMax NEXT Wireless Notebook Adapter (WN511B)

Experience the NEXT generation – up to 270Mbps wireless networking. Features include:

- Steady-Stream connection for your notebook computer at great range
- Complies with draft 802.11n, backwards compatible with 802. 11b/g WiFi
- Interoperates at up to 270Mbps with other Intensi-fi products

$149 Save $80
WebCode NTG7936

Netgear Rangemax Next ADSL Modem router (DG834N)

- Complies with draft 802.11n*, backwards compatible with 802.11b/g WiFi
- Includes built-in ADSL2+modem for downstream speeds up to 24 Mbps
- Interoperates at up to 270Mbps* with other products with Intensi-fi
- Ensures maximum coverage and bandwidth with preset internal antennas

$322 Save $77
WebCode NTG7582

Netgear Digital Entertainer (EVA700)

Bring all your digital content from your PC and the Internet directly to your TV. Digital content is changing the way you get entertainment. You often listen to music files and streaming audio, and watch video files and streaming video on your PC. However, now with the NETGEAR Digital Entertainer, you can enjoy your digital videos, photos and music on your home entertainment system or TV.

$427 Save $72
WebCode NTG7625

Netgear Super G Wireless ADSL Router with 4-port switch (DG834GT)

Lets you instantly and safely download large files, video conference, and distribute and play high-quality digital movies, photos, and MP3's. Protects your network against intruders. Super G for extra speed and range.

$214 Save $75
WebCode NTG7301

Netgear Storage Central (SC101)

Plug in up to 2 IDE drives of any size and create a central storage space for all your music, video, photos, games, and files that is accessible by all the PCs on your network. Keep your most valuable files safe with advanced, automatic backup features, and keep them private from other network users if desired.

$149 Save $90
WebCode NTG7350

Netgear Skype WiFi Phone (SPH101)

NETGEAR's Skype WiFi Phone is the first that lets you make free domestic and international calls to other Skype users over a wireless network without being tied to a PC. It's great to use at home or work where you have wireless access, whether or not it is WEP encrypted. For a small fee, you can have voicemail, or even talk with non-Skype users on ordinary phones at a discount.

$370 Save $129
WebCode NTG7626

Netgear ACE Configured Broadband Voip Adapter (TA612V)

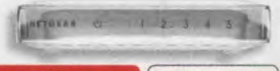
NETGEAR's TA612V Broadband Voice Adapter lets you experience fast network connectivity and has built-in a phone adapter that delivers convergent voice services (VoIP) to your home networking environment. Powerful, secure, private, and easy to use, but best of all, it helps save money on phone calls with VoIP phone service.

$145 Save $34
WebCode ACE0001

5 PORT GIGABIT DESKTOP SWITCH (GS605)

Provides maximum performance, connecting up to 10x faster than Fast Ethernet. Makes it simple to combine Fast Ethernet and Gigabit devices in your network. Incorporates Plug-and-Play ease of use.

8 Port GS608 (NTG7186) $105



$72 Save $17
WebCode NTG7187

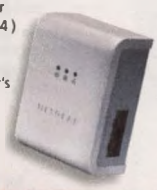
Netgear 54 Mbps Wireless Router and PC Card Kit (WGB511BDL1)

This complete kit sets you free to take your notebook computer anywhere without being tied to ethernet cables. Enjoy broadband internet connection sharing and access to network resources at up to 54 Mbps. Double firewall provides superior protection from hackers. High-level encryption ensures confidentiality and prevents unauthorised access to your network.

$93 Save $26
WebCode NTG7071

Netgear WALL-PLUGGED ETHERNET SWITCH (XE104)

The XE104 85 Mbps Wall-Plugged Ethernet Switch delivers everything you need to extend the Internet to any room in your home without having to run new wires. Plug one XE104 into your router and another XE104 (up to 4) to any Ethernet-ready devices including a PC, a gaming console, Netgear's SC101 Storage Central, a Slingbox, a DVR or Netgear's PS121 USB Print Server.



$134 Save $35
WebCode NTG7955

Netgear ProSafe VPN Firewall 8 with 4 Port 10/100 Mbps Switch (FVS114)

Compact FVS114 ProSafe VPN Firewall 8 offers strong encryption, 8 IPSec VPN connections, SPI firewall, intrusion detection, URL filtering, and more. SNMP, Smart Wizard, VPN Wizard simplify set up and use. Compatible with leading VPNC devices, including Cisco, Juniper/Netscreen, Checkpoint; works with all major operating systems. Optimised for ProSafe VPN client software and NMS100.

$136 Save $33
WebCode NTG7353

Call 1300 658 600 or visit www.csw.com.au as prices may change due to the daily fluctuations and online discounts. Save price is calculated off the RRP

NETGEAR

D-Link DECT Cordless VoIP Phone (DPH-C160S)

A phone solution that makes adding a VoIP phone service to a standard phone service quick, easy and inexpensive. Get immediate access to low cost international and interstate VoIP calling and traditional phone service in a single device. With true plug & play simplicity, the DPH-C160S is a normal DECT cordless phone when you connect it to an ordinary phone line connection, and it is an VoIP phone when you connect it to the Internet through a broadband connection.

- Make/Receive VoIP and regular calls on the same phone
- Echo cancellation for enhanced voice quality
- Speed-dial, Call forwarding, Call waiting between VoIP and regular phone line
- Auto detection and switching of incoming VoIP and regular calls
- 3-Way conference calling between VoIP and regular phone line
- Switch between VoIP and regular phone line
- PSTN failover for loss of Internet connection
- Handset locator
- Speaker phone

$226 Save $43
WebCode DLK0006

D-Link Xtreme N Gigabit Router (DIR-655)

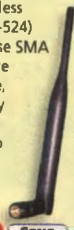
The D-Link Xtreme N Gigabit Router is a draft 802.11n compliant device that delivers up to 300Mbps and superior wireless coverage for larger environments & bandwidth-intensive applications. Backwards compatible with 802.11b/g, connected to a Cable/DSL modem provides high-speed internet access to PC's, gaming consoles and media players. Inc. 4-port Gigabit switch & QoS Prioritization Technology.

NEW

$328 Save $71
WebCode DLK0084

D-Link 5dBi Gain Dipole Antenna (DWL-50AT)

The D-Link DWL-50AT is a 5dBi High Gain Antenna with Reverse SMA connector. It can help to improve the transmit rate and extend the transmit distance of wireless access point (DWL-G700AP, DWL-G710) or wireless gateway router (DI-524) which have a reverse SMA connector. To ensure better performance, you should not only improve the RF on transmitter but also on the receiver. i.e. high gain card.



$28 Save $7
WebCode DLK0210

D-Link 54Mbps Wireless Router & USB Print Server (DI-524UP)

This 54Mbps Wireless Broadband Router also includes a Built-in USB Print Server. Built-in 4-port Fast Ethernet switch for a hard wired connection to the network. Advanced Firewall & Parental Control and easy web-based management from any browser.

PCMCIA wireless card (DLK9992) $38
PCI wireless card (DLK9991) $37
USB device (DLK1153) $48

$117 Save $33
WebCode DLK9988

D-Link 108Mbps Wireless Storage Router (DI-624S)

Wirelessly share a Broadband Internet Connection of up to 108Mbps. Also features 2 USB 2.0 Ports to Connect and Share either a USB External Hard Disk Drive or Printer. 802.11b, 802.11g Compatible.

PCMCIA wireless card (DLK5401) $63
PCI wireless card (DLK5400) $64
USB device (DLK6021) $74

$160 Save $39
WebCode DLK9989

D-Link RangeBooster N650 Router (DIR-635)

A draft 802.11n compliant device that delivers real world performance of up to 650% faster than an 802.11g wireless connection and faster than 100Mbps wired Ethernet. Connect the RangeBooster N 650 Router to a cable or DSL modem and share your high-speed Internet access with everyone on the network.

PCMCIA wireless card (DLK9206) $144
PCI wireless card (DLK9205) $147

$209 Save $99
WebCode DLK9208

Directional Indoor Antenna 7dBi (ANT24-0700)

The ANT24-0700 is a High-Gain omni-directional antenna designed for 2.4GHz ISM band indoor use. It can be used with 802.11g and 802.11b wireless LAN devices such as accesspoints and remote routers. It can be connected to your wireless device through an extension cable or directly attached to your wireless device.

5dBi Antenna (DLK0141) $63

$77 Save $23
WebCode DLK9248

D-Link VoIP Terminal Adapter (DVG-2001S)

The DVG-2001S VoIP Terminal Adapter links traditional telephony networks to IP networks with conventional telephony devices such as analog phones or fax machines. This product has one RJ-12 port to connect to a standard phone and one Ethernet port to connect to a network.

$75 Save $44
WebCode DLK9252

Wireless ADSL2/2+ VPN Router (DSL-G804V)

The DSL-G804V is an ADSL 2/2+ compliant 54G modem/router with 4-port Ethernet switch, QoS traffic priority, and VPN (Virtual Private Network). Through VPN tunnelling protocols, this router privatizes your communication channels for remote access users safely without fear of observation, modification, or spoofing.

$245 Save $54
WebCode DLK9210

D-Link GigaExpress Gigabit Switch (DGS-1005D)

Get the blazing speed of Gigabit Ethernet with the D-Link GigaExpress DGS-1005D, a 5-port 10/100/1000Mbps Gigabit Switch that delivers power, performance, and reliability in one cost-effective, space-saving design.

Ethernet PCI Card (DLK0103) $30
GiGabit PCI Card (DLK0005) $138

$65 Save $35
WebCode DLK0686

High-Speed 2.4GHz WiFi Range Extender (DWL-G710)

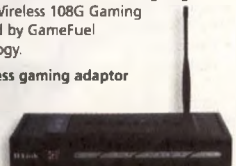
For users seeking a simple solution to improve the reach of their wireless signal within their home or office, the DWL-G710 is the answer. This Wireless Range Extender takes an existing 802.11g wireless signal and "repeats" it to enable extended wireless connectivity

$129 Save $31
WebCode DLK9463

D-Link Wireless 108G Gaming Router (DGL-4300)

Push the limits of basic networking technology and experience the evolution in networking. Wirelessly share broadband Internet, boost network performance, stay competitive in your online games with D-Link's cutting-edge GamerLounge Wireless 108G Gaming Router, powered by GameFuel Priority Technology.

DGL-3420 wireless gaming adaptor (DLK9351) $147



$235 Save $65
WebCode DLK6007

D-Link USB/Ethernet ADSL Modem (DSL-502T)

Using ADSL technology, your Internet speeds can be up to 150 times faster than a 56K modem over a standard phone line. Two computers can simultaneously connect via the USB and ethernet port to share its high-speed internet connection. You can connect to its ethernet port regardless of the operating system you are using, or connect to its USB port to allow easy installation to a USB equipped computer.

$69 Save $51
WebCode DLK9977

D-Link ADSL Modem with 54Mbps Wireless Router (DSL-G604T)

With a built-in ADSL 2/2+ interface, 802.11g high-speed wireless LAN, 4 10/100BASETX Ethernet switch ports and advanced router functions, this device gives your business a convenient and cost-effective way to install a fast secure, bottleneck-free network link to the outside world. The DSL-G604T is an ADSL Modem Router designed for home or office use.

$120 Save $60
WebCode DLK5109

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Sony 8" Widescreen Portable DVD Player

Introducing the new Sony Portable DVD Player. The 8 inch Widescreen LCD gives you amazing detail and vibrant colour and along with a massive 6 Hour Battery Life you'll be able to watch your favourite DVD's anywhere, anytime!

$433 Save $66
WebCode SNY0561

Excel DVD-R 8X 50pc Spindle

The ideal choice for high resolution video and images. Create, edit and archive home movies & digital photos while storing and accessing data from one disc. DVD-R discs capture 4.7GB. Printable surface.

$19 Save $16
WebCode EXC0001

TFT Screen Clean

For use on all coated and non-coated laptop, notebook, tft, plasma, lcd, pda, gps, mobile, basically any screen or monitor. extensively tested by users and manufacturers, laboratory and industry test have shown that cleansafe will clean and protect all screen surfaces.

$15 Save $7
WebCode CLE0001

See page 46 for details!

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Did you know that you can get up to 3% rebate on every order?

Pinnacle SoundBridge Network Media Player

Pinnacle SoundBridge is a stylish wireless and ethernet network music player that directly connects to your stereo or powered speakers and plays digital music files stored on your PC or Mac to anywhere in the house. Listen to thousands of internet radio stations even when the computer is switched off. A large display and remote control lets you browse, select and control your music from across the room. Works with PC or MAC.

Stream Music Wirelessly

$363 Save $36
WebCode PIN0151

Dicota Universal Travel Adapter

Cosmos Power solves your contact problems all around the world! The patented travel socket adapter has four power plug versions (EU, US, UK, AUS). A safe and easy way to connect your portable devices (Notebook, PDA, mobile phone, etc.) to an electrical outlet in more than 150 countries.

$33 Save $12
WebCode DIC0038

TViX M-3100U Harddisk Media Player

TViX is a standalone, multimedia hard disk player that plays digital videos, digital music, digital still photographs and DVD file to a TV or home entertainment system. This is a new way of enjoying digital content in the comfort of your own living room without having to burn discs and playing it back on a DVD or CD player. TViX performs just like a DVD player. Better still it doubles as a portable DVD movie library! Create your own home DVD movies and watch them as though they were playing back on a DVD player. HDD required.

Portable Media Jukebox

$294 Save $26
WebCode DVC0020

TViX HD M-5000U

Playback high definition video (up to 1920x1080i) and still images. Pre-recorded HDTV programs from a digital TV set-top box or personal digital video contents taken by a HDV™ camcorder can be played back with TViX HD on a high definition display. The TViX HD features a DVI connector and component, which matches the high resolution of HD level video contents. HDD required.

$577 RENTSMART BECAUSE BUYING ISN'T $7.35 PER WEEK
WebCode DVC0015

Pinnacle Studio MovieBox Tintanium Edition 510 USB

Introducing, from Pinnacle, the worldwide leader in home video editing, Studio 500-USB version 10, the most friendly, complete and powerful home video editing solution available today. Studio 500-USB combines the legendary ease of its intuitive three-step movie creation process with the power to quickly and reliably capture all of your precious memories.

$248 Save $22
WebCode PIN0124

Pinnacle PodCast Factory

Your Voice on the Internet in Minutes. Pinnacle Podcast Factory is an all-in-one hardware/software solution that makes it easy to record, edit and distribute professional-sounding podcasts.

NEW

$258 Save $17
WebCode PIN0153

Kaiser Baas Digital Photo Frames

The perfect complimentary product for digital cameras!

Show all your digital photos as slideshows with background music.

- 8inch LCD screens (viewable area)
- 128MB built-in memory
- Rotate, Zoom, Set Slideshow Duration

8" Digital Photo Frame Black (KAB0002) $376

8" Digital Photo Frame - white
$376 Save $23
WebCode KAB0004

Pinnacle PCTV Hybrid Pro Stick

Watch digital & analogue TV on your Laptop. Features Direct-to-DVD or HDD recording, Timeshift, direct to DivX recording format, camcorder capture. Remote control included. Microsoft Windows Vista drivers included.

FREE CRICKET BALL VIA REDEMPTION

Redeem from supplier. Offer valid 1st Feb to 30th April.

$217 Save $58
WebCode PIN0154

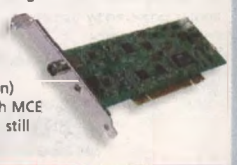
Dvico Fusion HDTV DVB-T NANO

- Decoding and viewing of Digital Terrestrial TV
- USB 2.0 high speed compatible
- Real Time Digital Video Recording(DVR) & Scheduled recording
- Recording stream cut-on-the-fly utility
- High resolution still image capture
- HD(MPEG2) to DVD/ MPEG4 (Divx) conversion
- USB remote control included
- Time-shifting

$154 Save $45
WebCode DVC0019

Dvico Fusion HDTV Dual Digital 4

- Watch One Channel While Recording Another
- Watch DVB-T Digital TV Programs on Your PC
- Picture in Picture (PIP) & Multi-view Function
- Record TV programs to hard drive as DVD/ MPEG2 format
- Scheduled recording from Hibernation/Stand-by/PC-off mode
- Pause and replay live TV shows (Time-shifting function)
- Compatible with MCE
- High-resolution still image capture



$238 Save $37
WebCode DVC0026

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kaiser baas DICOTA DVICO pinnacle TVX

HP LaserJet 3055 A4 Mono All-in-one Printer

Benefit from full functionality with the compact, flatbed HP LaserJet 3055 All-in-One. Versatile and reliable, it lets you produce professional documents quickly with fast print, fax, scan and copy functions, plus network connectivity.

- Print: 18ppm, first page out less than 8 sec, 1200 x 1200 dpi 264Mhz, 64MB RAM
- Copy: Flatbed 600 x 600 dpi, 24 bit depth
- Scan: 600 x 600 dpi optical resolution (9600 dpi enhanced) colour scanning
- Fax: 33.6kbps

$670 | RENTSMART BECAUSE BUYING ISN'T $8.53 PER WEEK
WebCode HPL6530

HP LaserJet CM1017 MFP A4 Colour Printer

Be it printing, scanning or copying, you can now get the job done in less time with HP Color LaserJet CM1017 MFP. And with all the essential office functions in one device, you can easily create impressive marketing materials in-house and cut down on outsourcing costs.

- Up to 8 ppm (letter and A4, colour and B&W
- Copy: Flatbed 600 x 600 dpi, 24 bit depth
- Scan: 1200 dpi optical resolution, up to 19,200 enhanced resolution
- Processor 300 MHz, 96 MB built-in; expandable to 224 MB

$1156 | RENTSMART BECAUSE BUYING ISN'T $14.72 PER WEEK
WebCode HPL0395

HP LaserJet P2015 A4 Mono Printer

Fast, reliable black and white laser printer for small offices

Compact, easy to use and manage, the HP LaserJet P2015 printer is a fast and reliable black-and-white printer that's perfect for the small office environment.

- Print speed: Up to 27 ppm (letter), 26 ppm (A4)
- Print Up to 1200 x 1200 dpi; HP FastRes 1200
- Processor: 400 MHz, Memory 32 MB, expandable to 288 MB
- Interfaces: Hi-Speed USB 2.0 port

HOT PRODUCT

$531 | Save $58
WebCode HPL0366

HP LaserJet P3005N A4 Mono Printer

Your business relies on high-speed, high-volume printing for greater productivity and efficiency. The HP LaserJet P3005N Printer is the ideal solution for small and medium-sized offices. With its ease-of-use, low total cost of ownership and robust performance, this reliable and worry-free printer allows you to rest easy and concentrate on your business.

- Up to 35 ppm, letter (up to 33 ppm, A4)
- 1200 dpi resolution
- 400 MHz processor
- 48 MB RAM, expandable to 320 MB
- Network interface
- One open EIO slot
- 500-sheet input tray

$1459 | RENTSMART BECAUSE BUYING ISN'T $18.00 PER WEEK
WebCode HPL7814

HP LaserJet 1020

A4 Mono Printer

- Up to 15 ppm (letter), 14 ppm (A4)
- First page out less than 10 seconds
- 1200 dpi effective output quality
- 234 MHz Processor
- Memory 2 MB RAM
- 5,000 pages per month duty cycle

Simple. Compact. Affordable.

$197 | Save $46
WebCode HPL5911

HP LaserJet 1022

A4 Mono Printer

- Up to 19 ppm letter (up to 18 ppm A4)
- First page out less than 8 seconds
- 8,000 pages per month duty cycle
- Processor 266 MHz
- Memory 8 MB RAM
- True 1200 dpi

Professional Laser results.

$281 | Save $56
WebCode HPL5912

HP LaserJet 2600n

A4 Colour Printer

- 8 ppm A4 black & colour
- 600 x 600 dpi
- 35,000 pages per month duty cycle
- 1 USB 2.0 port
- 1 built in Fast Ethernet wired networking port
- 16MB Memory

$562 | RENTSMART BECAUSE BUYING ISN'T $7.15 PER WEEK
WebCode HPL6455

HP LaserJet 3050 A4 Mono all-in-one printer

Print: 18ppm, first page out less than 8 sec, 1200 x 1200 dpi 264Mhz, 64MB RAM
Copy: 600 x 600 dpi, 24 bit depth
Scan: 600 x 600 dpi (up to 19,200 dpi enhanced)
Fax: V.34 fax modem - 33.6 kbps

$445 | Save $54
WebCode HPL6504

HP LaserJet 3052 A4 Mono All-in-one Printer

- Print: 18ppm, first page out less than 8 sec, 1200 x 1200 dpi 264Mhz, 64MB RAM
- Copy: Flatbed 600 x 600 dpi, 24 bit depth
- Scan: 600 x 600 dpi optical resolution (9600 dpi enhanced) colour scanning

HOT PRODUCT

$536 | Save $63
WebCode HPL6520

HP LaserJet 3390 A4 Mono All-in-one Printer

- Print: 21ppm, first page out less than 10 sec, 1200 x 1200 dpi 264Mhz, 64MB RAM
- Copy: Flatbed 600 x 600 dpi, 24 bit depth
- Scan: Flatbed 1200 x 1200 dpi (up to 19,200 dpi enhanced)
- Fax: V.34 fax modem - 33.6 kbps

$983 | RENTSMART BECAUSE BUYING ISN'T $12.51 PER WEEK
WebCode HPL6500

Consumables

HP Laserjet 3050
HP LaserJet Q2612A Black Print Cartridge - 2,000 Sheets (HPL2612) $101
HP 3 Year Return To Depot Warranty (HPW6987) $141

HP Laserjet 3052
HP LaserJet Q2612A Black Print Cartridge - 2,000 Sheets (HPL2612) $101
HP 3 Year Return To Depot Warranty (HPW6987) $141

HP Laserjet 3055
HP LaserJet Q2612A Black Print Cartridge - 2,000 Sheets (HPL2612) $101
HP 3 Year Return To Depot Warranty (HPW6987) $141

HP Laserjet 3390
HP LaserJet Q5949A Black Print Cartridge - 2,500 Sheets (HPL5949) $103
HP LaserJet Q5949X Black Print Cartridge - 6,000 Sheets (HPL5994) $188
HP 3 Year Onsite Warranty (HPW2659) $192

HP Laserjet 1020
HP LaserJet Q2612A Black Print Cartridge - 2,000 Sheets (HPL2612) $101
HP 3 Year Onsite Exchange Warranty (HPW5510) $79

HP Laserjet 1022
HP LaserJet Q2612A Black Print Cartridge - 2,000 Sheets (HPL2612) $101
HP 3 Year Onsite Exchange Warranty (HPW5510) $79

HP Laserjet 1320
HP LaserJet Q5949A Black Print Cartridge - 2,500 Sheets (HPL5949) $103
HP LaserJet Q5949X Black Print Cartridge - 6,000 Sheets (HPL5994) $188
HP Next Business Day Onsite 3 Year Warranty (HPW5473) $53

HP Laserjet 2600
HP LaserJet Q6511A Black Print Cartridge - 6,000 Sheets (HPL5949) $103
HP LaserJet Q6511X Black Print Cartridge - 12,000 Sheets (HPL5994) $188
HP Next Business Day Onsite 3 Year Warranty (HPW0114) $177

HP Laserjet CM1017
HP Black Print Cartridge (HPL6060) $107
HP Cyan Print Cartridge (HPL6061) $117
HP Yellow Print Cartridge (HPL6062) $117
HP Magenta Print Cartridge (HPL6063) $117

HP Laserjet P2015
HP Black Print Cartridge 3,000 pages (HPL7553) $114
HP Black Print Cartridge 7,000 pages (HPL7554) $209

HP Laserjet P3005
HP Black Print Cartridge 6,500 pages (HPL7551) $182
HP Black Print Cartridge 13,000 pages (HPL7515) $306

Business Printers

OVER 17,000 PRODUCTS ONLINE at csw.com.au & choose to pickup or delivery

Business Printers

Consumables

Fuji Xerox Printers C525A & C2090FS

Fuji Xerox Toner Cartridge for C525A Cyan **(FXP0534) $190**

Fuji Xerox Toner Cartridge for C525A Magenta **(FXP0533) $190**

Fuji Xerox Toner Cartridge for C525A Yellow **(FXP0532) $190**

Fuji Xerox Toner Cartridge for C525A Black **(FXP0535) $109**

Fuji Xerox Printers Phaser 8500DN

Fuji Xerox Ink Cyan 3 Pack **(FXP8551) $136**

Fuji Xerox Ink Magenta 3 Pack **(FXP8552) $136**

Fuji Xerox Ink Yellow 3 Pack **(FXP8553) $136**

Fuji Xerox Ink Black 3 Pack **(FXP8554) $136**

Fuji Xerox 8500 2 Year Extended Warranty **(FXP8516) $510**

Fuji Xerox Printers Docuprint 203A & 204A

Fuji Xerox Mono Toner 2.5k Page Yield **(FXP2416) $69**

Fuji Xerox Drum 12k Page Yield **(FXP2417) $98**

Fuji Xerox PE220

Fuji Xerox Toner Cartridge Black - CWAA0683 **(FXP0683) $98**

Fuji Xerox C2100

Fuji Xerox Toner Cartridge Black - CT350485 **(FXP2110) $123**

Fuji Xerox Toner Cartridge Cyan - CT350482 **(FXP2111) $138**

Fuji Xerox Toner Cartridge Magenta - CT350483 **(FXP2112) $138**

Fuji Xerox Toner Cartridge Yellow - CT350484 **(FXP2113) $138**

Fuji Xerox C3055DX

Fuji Xerox Toner Cartridge Black - CT200805 **(FXP3063) $85**

Fuji Xerox Toner Cartridge Yellow - CT200808 **(FXP3066) $275**

Fuji Xerox Toner Cartridge Magenta - CT200807 **(FXP3065) $275**

Fuji Xerox Toner Cartridge Cyan - CT200806 **(FXP3064) $275**

Fuji Xerox C3119

Fuji Xerox Toner Cartridge Black - CWAA0713 **(FXP0271) $104**

Print samples available on the entire Fuji Xerox range! Please call City Software on 1300 658 600 to arrange

BUY ONLINE at csw.com.au & choose pickup or delivery

Fuji Xerox Printers DocuPrint C525 A

A4 Colour Laser Printer

- Black Print Speed 25ppm
- Colour Print Speed 5ppm
- First Page Out 9 Sec Black/ 17 Sec Colour
- Max Duty Cycle 45,000 ppm
- Memory Size 64MB
- Resolution 9600 x 600 image enhancement
- Paper capacity 250 sheets Std / 950 Max

$412 Save $171

WebCode FXP0525

Fuji Xerox Printers WorkCentre PE220

Black & White Multifunction Printer

The WorkCentre PE220 is big in performance and small in size making it suitable for small businesses and workgroups, branch offices and individual users. Clean, efficient laser printing Razor sharp copying Great colour and monochrome scanning.

Print/Copy
Fax/Scan

$429 Save $70

WebCode FXP1220

Fuji Xerox Printers DocuPrint C2100

A4 Colour Laser Printer

NEW

The DocuPrint C2100 redefines colour network printing and is the ideal choice for workgroups that require a high quality printer at a low total cost of ownership.

- 25ppm black; 17ppm col.
- Memory Standard/Max 128 MB/ 640MB Ram
- Print Res: 9600x600 dpi

$706 RENTSMART BECAUSE BUYING ISN'T $8.99 PER WEEK

WebCode FXP2100

Fuji Xerox Printers DocuPrint C3210DX

A4 Colour Laser Printer

NEW

- Black print speed 30ppm
- Colour print speed 25ppm
- Memory size 128MB upgradeable to 640MB
- Resolution 1200 x 1200 dpi
- Paper capacity 700 sheets standard, 2350 max
- Ethernet 10/100Base-TX, IEEE1284 Parallel, USB 2.0, MPC (Multi-protocol Network Card)
- Very low cost per print

$1136 RENTSMART BECAUSE BUYING ISN'T $14.46 PER WEEK

WebCode FXP3211

Fuji Xerox Printers DocuPrint C2090FS

A4 Colour Multifunction Printer

NEW

- Great Print Speed of up to 5ppm colour/25ppm monochrome
- Copy Speed of up to 5ppm colour/20ppm monochrome
- Scan Resolution: Optical: 1200 x 1200 dpi; Enhanced: up to 4800 x 4800 dpi
- Bundled Software: DocuWorks 5.0, Acrobat Reader 5.05
- Paper Input Capability of 200 sheets + 50 sheets ADF
- Memory (Std/Max): 96MB / 352MB

$1136 RENTSMART BECAUSE BUYING ISN'T $14.46 PER WEEK

WebCode FXP2090

Fuji Xerox Printers Phaser 8500DN

A4 Colour Solid Ink Printer

MASSIVE PRICE DROP

- Up to 85,000 pages maximum monthly duty cycle
- Print speed of 24 ppm
- First page out in 6 seconds
- Resolution 600 x 600 dpi
- Memory up to 256MB
- Adobe PostScript 3 & PCL5c
- Duplex printing

8550 (FXP8550)$2653

Environmentally Friendly & Easy to use!

$1287 RENTSMART BECAUSE BUYING ISN'T $16.38 PER WEEK

WebCode FXP8510

Fuji Xerox Printers WorkCentre 3119

A4 Mono Multifunction Printer

- A4 Mono Laser Printer, Copier and Colour Scanner
- 600x600dpi printing and copying Up to 10,000pages/month
- Scan and Edit Scan to Desktop
- Bundled with Software Nuance
- PaperPort SE 10.0
- 19 ppm/ cpm

$237 Save $38

WebCode FXP0235

Fuji Xerox Printers Phaser 3428DN

A4 Mono Laser Printer

NEW

- A4 Mono Laser Printer
- 30ppm (Letter) / 28ppm (A4)
- Memory size 32MB upgradeable to 288MB
- 1200x1200dpi printing Up to 65,000pages/ month
- Ethernet 10/100BaseTX

$644 RENTSMART BECAUSE BUYING ISN'T $8.20 PER WEEK

WebCode FXP3429

Fuji Xerox Printers DocuPrint C3055DX

A3 Colour Office Printer

NEW

The world's smallest A3 size mono printer–that also prints in colour. Its versatility makes it perfect for small to medium workgroups that demand performance, flexibility and professional print quality.

$2368 RENTSMART BECAUSE BUYING ISN'T $28.25 PER WEEK

WebCode FXP3055

CAN THE DEAL GET BETTER?
Call 1300 658 600 or visit www.csw.com.au as prices may change due to the daily fluctuations and online discounts. Save price is calculated off the RRP.

Konica Minolta magicolor 2490MF

A4 Four-In-One Colour Laser

- Print speed up to 20 ppm A4 mono and 5 ppm colour
- Copy speed up to 10 cpm (mono) and 3.6 cpm (colour) (1-to-1)
- Resolution up to 2400 x 600 dpi (print), 600 dpi (copy and scan)
- Stand alone Fax functionality
- Solid 50 sheets ADF unit
- 128 MB RAM
- 1 year on-site warranty (Next day service)

First 20 Only

***FREE Duplexer Unit valued at $299**

*Via redemption see www.csw.com.au for more details

$1398

RENTSMART BECAUSE BUYING ISN'T $17.25 PER WEEK

WebCode..... QMS2492

Konica Minolta magicolor 2500W

A4 Personal Colour

The Konica Minolta Personal colour laser. This small, fast and cost effective printer is a welcome addition to any team.

- Print speed up to 20 ppm mono (A4/letter), 5 ppm colour (A4/letter)
- Resolution up to 2400 x 600 dpi
- 32MB RAM Standard Memory (max)
- 200-sheet multipurpose paper tray
- USB 2.0 Hi Speed
- 2 year on-site warranty (Next day service)

$456

Save $43

WebCode..... QMS2500

Konica Minolta magicolor 5450

A4 High Speed Network Graphic

The magicolor 5450 is a professional solution ideal for creatively communicating in colour!

- Print speed up to 27 ppm colour/mono (letter), 25 ppm colour/mono (A4)
- Resolution up to 9600 x 600 PhotoArt Contone
- 256MB RAM Standard Memory (max. 1GB)
- PostScript 3, PCL5, PCL6
- 500-sheet universal cassette, 100-sheet adjustable multipurpose paper tray
- Parallel, USB 2.0 Hi Speed, Ethernet (10/100/1000BaseTX), PictBridge
- 1 year on-site warranty (Next day service)
- Microsoft Windows, Mac OS, Linux, Novell, Unix

PRICE BREAKTHROUGH

$1367

RENTSMART BECAUSE BUYING ISN'T $16.86 PER WEEK

WebCode..... QMS5451

Konica Minolta magicolor 5430DL

A4 Mid-Range Network Colour

Konica Minolta is a professional solution ideal for creatively communicating in colour!

- Print speed up to 21 ppm colour/mono (letter), 20 ppm colour/mono (A4)
- Resolution up to 2400 x 600 dpi
- 64MB RAM Standard Memory (max. 576MB)
- PageScope Raster language
- 250-sheet universal cassette
- USB 2.0 Hi Speed, Ethernet (10/100BaseTX)
- 1 year on-site warranty (Next day service)
- Microsoft Windows, Mac OS, Linux

First 10 Only

***FREE LOWER FEEDER UNIT VALUED AT $399**

*Via redemption see www.csw.com.au for more details

$853

RENTSMART BECAUSE BUYING ISN'T $10.86 PER WEEK

WebCode..... QMS5430

Canon Pixma IP1700

A4 Inkjet Printer

Fast: Prints a photo lab quality 10x15cm borderless photo in approx. 55 seconds

- Photo lab quality: max. 4800x1200dpi
- ChromaLife100 system for long-lasting, beautiful photos
- Rapid borderless printing up to A4 size
- Easy-to-use software included

$62

Save $7

WebCode..... CAN0540

Canon Pixma MP180

A4 Multifunction

- 2 picolitre FINE print-head technology results in sharper text and enhanced image detail
- ChromaLife 100 ink for, long-lasting photos
- Produce high-quality photos and documents at up to 4800 x 1200 dpi
- Features "Dual Gamut Colour Processing Technology" for optimised reprints
- Create true borderless 6" x 4", 5" x 7" and A4 size photos

$108

Save $11

WebCode..... CAN0520

Canon Pixma MP600

A4 Multifunction

- Exceptional resolution: 3,584 precision nozzles create exceptional resolution & colour—up to 9600 x 2400 dpi. More nozzles = high quality.
- Exceptional detail: Microscopic 1-picoliter sized ink droplets produce detailed photos.
- Sharper previews: The 2.5" high-definition TFT display delivers sharp previews of your images, viewable from up to a 170-degree angle.

$307

Save $42

WebCode..... CAN0530

Canon Pixma IP4300

A4 Inkjet Printer

- 1 picolitre FINE (Full-photolithography Inkjet Nozzle Engineering) print-head technology
- ChromaLife 100 ink for beautiful, long-lasting photos
- Up to 9600 x 2400 dpi printing resolution
- Prints true borderless photos up to A4 size - direct digital camera printing

$177

Save $22

WebCode..... CAN0531

Canon Pixma MP830

A4 Multifunction

- Full colour printer, copier, scanner & fax
- 1 picolitre FINE print-head technology, providing up to 9600 x 2400dpi printing
- Dual paper path, auto duplex, mobile phone and digital camera & direct CD/DVD printing
- 5 individual ink tanks for greater economy
- Auto duplex, Printing Copying and scanning

$476

Save $73

WebCode..... CAN0497

Canon ImageCLASS MF4150 (A4 Multifunction)

Print, fax, copy and scan perfectly with this complete and compact laser All-in-One.

- Compact laser printer, fax, copier, scanner
- 20 ppm/cpm,1200x600dpi
- Super G3 fax, 256-page* fax memory
- 35-sheet ADF
- Automatic double-sided printing
- All-in-One cartridge

NEW

$476

Save $73

WebCode..... CAN0532

Consumables

Konica Minolta Magicolor 2490MF & 2500W

Konica Minolta 2400 / 2500 Black Toner (QMS2404) $130

Konica Minolta 2400 / 2500 Cyan Toner - Std Cap (QMS2403) $90

Konica Minolta 2400 / 2500 Magenta Toner - Std Cap (QMS2402) $90

Konica Minolta 2400 / 2500 Yellow Toner - Std Cap (QMS2401) $90

Konica Minolta 2400 / 2500 Cyan Toner - High Cap (QMS2407) $196

Konica Minolta 2400 / 2500 Magenta Toner - High Cap (QMS2406) $196

Konica Minolta 2400 / 2500 Yellow Toner - High Cap (QMS2405) $196

Konica Minolta Magicolor 5430DL & 5450

Konica Minolta Toner Cartridge for MC5430 Black (QMS5433) $166

Konica Minolta Toner Cartridge for MC5430 Yellow (QMS5434) $237

Konica Minolta Toner Cartridge for MC5430 Magenta (QMS5435) $237

Konica Minolta Toner Cartridge for MC5430 Cyan (QMS5436) $237

Konica Minolta Waste Toner Bottle for MC5430DL (QMS5437) $53

Konica Minolta 2 Year Onsite Warranty (QMS5439) $761

Canon Pixma IP1700 & MP180

Canon Ink Cartridge Colour - CL-41 (CAN0426) $34

Canon Ink Cartridge Colour - CL-51 (CAN0427) $ 48

Canon Ink Cartridge Black - PG-40 (CAN0435) $32

Canon Ink Cartridge Black - PG-50 (CAN0436) $42

Canon Pixma MP830

Canon Ink Cartridge Photo Blk- CLI-8BK (CAN0429) $23

Canon Ink Cartridge Cyan - CLI-8C (CAN0430) $23

Canon Ink Cartridge Magenta - CLI-8M (CAN0431) $23

Canon Ink Cartridge Yellow - CLI-8Y (CAN0434) $23

Canon Pixma MP600 & IP4300

Canon Ink Cartridge Photo Blk - CLI-8BK (CAN0429) $23

Canon Ink Cartridge Cyan - CLI-8C (CAN0430) $23

Canon Ink Cartridge Magenta - CLI-8M (CAN0431) $23

Canon Ink Cartridge Yellow - CLI-8Y (CAN0434) $111

Canon Ink Cartridge Black - PGI-5BK (CAN0437) $23

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Inkjet printers & Multifunctions

Epson Consumables

Epson CX3900/5900 CX3900/CX5900/ CX6900F

Epson Ink Cartridge Black **(EPA7320) $15**
Epson Ink Cartridge Cyan **(EPA7330) $15**
Epson Ink Cartridge Magenta **(EPA740) $15**
Epson Ink Cartridge Yellow **(EPA7350) $15**
Epson Ink Cartridge Black **(EPA8126) $18**
Epson Ink Cartridge Cyan **(EPA8127) $18**
Epson Ink Cartridge Magenta **(EPA8128) $18**
Epson Ink Cartridge Yellow **(EPA8129) $18**
Epson Ink Cartridge Light Cyan **(EPA8130) $18**
Epson Ink Cartridge Light Magenta **(EPA8131) $18**
Epson Ink Cartridge High Cap Black **(EPA8118) $24**
Epson Ink Cartridge High Cap Cyan **(EPA8121) $24**
Epson Ink Cartridge High Cap Magenta **(EPA8122) $24**
Epson Ink Cartridge High Cap Yellow **(EPA8123) $24**
Epson Ink Cartridge High Cap Light Cyan **(EPA8124) $24**
Epson Ink Cartridge High Cap Light Magenta **(EPA8125) $24**

HP Consumables

HP Photosmart C3180

HP 92 Black Inkjet Print Cartridge **(HPD9362) $22**
HP 93 Tri-Color Inkjet Print Cartridge **(HPD9361) $29**
HP 95 Tri-color Inkjet Print Cartridge **(HPD8766) $36**
HP 99 Photo Inkjet Print Cartridge **(HPD9369) $37**
HP Ink Cartridge No 95/99 Combo Pack **(HPD2071) $52**

HP Photosmart Officejet C5180 & C6180

HP 02 Black Ink Cartridge **(HPD8721) $27**
HP 02 Cyan Ink Cartridge **(HPD8771) $15**
HP 02 Magenta Ink Print Cartridge **(HPD8277) $15**
HP 02 Yellow Ink Print Cartridge **(HPD8773) $15**
HP 02 Light Cyan Ink Cartridge **(HPD8774) $15**
HP 02 Light Mag Ink Print Cartridge **(HPD8775) $15**
HP 02 Black Ink Cartridge **(HPD8721) $27**
HP 95 Tri Colour Ink Cartridge **(HPD8766) $36**
HP 02 Cyan Ink Cartridge **(HPD8771) $15**
HP 02 Yellow Ink Cartridge **(HPD8773) $15**
HP 02 Light Cyan Ink Cartridge **(HPD8774) $15**
HP 93 Tri Colour Ink Cartridge **(HPD9361) $29**
HP 98 Black Ink Cartridge **(HPD9364) $25**
HP 99 Tri Colour Ink Cartridge **(HPD9369) $25**

HP Officejet C4180

HP 22 Tri-color Inkjet Print Cartridge **(HPD9361) $29**
HP 27 Black Inkjet Print Cartridge **(HPD8772) $27**

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EPSON STYLUS CX3900

A4 Multifunction

- Economical Individual Ink Cartridges
- Print, Scan, and Copy at home
- Epson PhotoEnhance
- Epson Creativity Suite
- Print speeds up to 23ppm
- Print resolution up to 5760 Optimised dpi
- BorderFree prints up to A4
- High speed CCD Scanner
- USB Interface

Purchase this printer with one black DURABrite™ Ultra ink cartridge and receive a $20 Cashback

Cashback available December 14 2006–March 31 2007 via redemption. Please see www.csw.com.au/promotion for more details

$89 Save $10

WebCode EPI3900

Epson Stylus CX5900

A4 Multifunction

- DURABrite Ultra Ink
- Economical Individual Ink Cartridges
- Support for most popular memory cards
- Colour LCD screen
- Print, Scan, and Copy at home
- Epson PhotoEnhance
- Print speeds up to 27ppm
- Print resolution up to 5760 Optimised dpi
- BorderFree prints up to A4
- High speed CCD Scanner

BONUS PAPER

Purchase this printer with one black DURABrite™ Ultra ink cartridge and receive a $20 Cashback

Cashback available December 14 2006–March 31 2007 via redemption. Please see www.csw.com.au/promotion for more details

$177 Save $75

WebCode EPI5900

Epson RX590

A4 Multifunction

- 4x6-inch photos in only 13 seconds
- Up to 30 pages per minute
- 2.5-inch LCD screen
- Economical Individual Intellidge ink cartridges
- New Claria Photographic Ink
- Print direct to CD and DVD surfaces
- 5760 Optimised dpi
- PictBridge & memory card slots

$355 Save $44

WebCode EPI0590

Epson CX6900F

A4 Multifunction

- 27 ppm mono / 27 ppm colour
- 29 secs 4x6 photo
- 4 individual ink cartridges
- DURABrite Ultra ink
- 1200 dpi CIS Scanner
- PictBridge & memory card slots
- Fax – 33.6Kbps fax modem
- ABBYY FineReader OCR
- Windows & Mac compatible
- USB connectivity

Purchase this printer with one black DURABrite™ Ultra ink cartridge and receive a $20 Cashback

NEW

Cashback available December 14 2006–March 31 2007 via redemption. Please see www.csw.com.au/promotion for more details

$267 Save $32

WebCode EPI6900

HP Photosmart C3180 All in One Printer

Enjoy exciting photo printing plus all-in-one capability with HP Photosmart C3180.

- 4800 dpi colour 1200 dpi black
- 20ppm Colour 22ppm Black
- Direct photo printing via memory card

PERFECT FOR HOME

$118 Save $11

WebCode HPS3180

HP Officejet 5610 All in One Printer

Increase your productivity with the speed and efficiency of the compact HP Officejet 5600 All-in-One series. Enjoy professional-quality colour printing and copying with optional 6-ink colour. Send important faxes quickly, and eliminate unwanted faxes using junk fax barrier.

HOT

$228 Save $21

WebCode HPS5610

HP Officejet C4180 All in One Printer

With the HP Photosmart All-in-One, everyday photo printing is made exciting. New HP Photosmart Express lets you view and print your photos easily through a simplified and intuitive interface. Printing a photo takes just a few simple steps when you use HP Photosmart C4180's integrated 2.4-inch colour graphic display.

$229 Save $20

WebCode HPS4180

HP Photosmart D7160 Photo Printer

Unrivalled photo and document performance with economical, 6 individual ink cartridges. World's fastest photo printer with 4 x 6 photo speeds as fast as 12 seconds, and breakthrough document speeds up to 32 ppm black and 31 ppm colour.

NEW

$231 Save $18

WebCode HPS7057

HP Photosmart C5180 All in One Printer

Experience class leading photo printing and versatile all-in-one capabilities with the HP Photosmart C5180.

- 4 x 6-inch photo in 12 seconds
- Share images over an Ethernet network PC-free photo printing

$322 Save $27

WebCode HPS5180

HP Photosmart C6180 All in One Printer

Taking only 12 seconds to print a beautiful 4 x 6-inch photo, it's one of the fastest photo all-in-ones. With the large image display.

- Built-in 2.4-inch image display
- PC-free photo printing Efficient printing with HP Vivera Inks

$461 Save $38

WebCode HPS6180

CAN THE DEAL, GET BETTER!
Call 1300 658 600 or visit: www.csw.com.au as prices may change due to the daily fluctuations and online discounts. Save price is calculated off the RRP

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Business Partner

Belkin Internet Keyboard with Multimedia Keys

The Belkin Internet Keyboard provides one-touch access to the Internet and control of multimedia functions with specially designed hot keys centrally located on your keyboard. Now you can search the Web, view e-mail, launch Windows applications, and control CD/DVD media functions-all with the press of a button.

$21 Save $9
WebCode BEL2678

Belkin Wired Laser Mouse

The Belkin Laser Mouse features ultra precise tracking for users who demand pinpoint accuracy and hand hugging ergonomic comfort. The 1600dpi laser engine is able to track where most mice cannot, even on glass topped surfaces!

$44 Save $15
WebCode BEL0189

Belkin USB 2.0 DVD Creator

This great innovation from Belkin lets you capture and edit movies from a variety of analog video sources. The package includes the powerful Ulead movie-editing and DVD-authoring software that lets you add professional-quality soundtracks and titles, as well as stunning effects. When your work is completed, you can easily share your movies through e-mail, the Web, or as high-quality VCDs or DVDs.

$109 Save $20
WebCode BEL0151

Belkin 7-in-1 Retractable Cable Travel Pack

Carry and organize your USB and networking cables everywhere. The 7-in-1 Retractable Cable Travel Pack from Belkin offers a great solution for the mobile professional. It gives you an easy way to connect your USB and networking devices to your notebook computer, virtually anywhere you go.

$37 Save $12
WebCode BEL4669

Belkin Hi-Speed USB 2.0 4-Port Hub

This USB innovation from Belkin lets you connect up to four peripherals quickly and easily. Our Hi-Speed USB 2.0 4-Port Hub provides four downstream USB ports that offer Plug-and-Play connectivity to your USB 1.1 (low- and full-speed) and USB 2.0 (high-speed) devices. This includes such peripherals as scanners, printers, mass-storage drives, and high-resolution cameras. The Hub is self-powered and allows cascading so that up to 127 USB devices may be connected to a single port.

$50 Save $10
WebCode BEL0329

Belkin SOHO Series Surge Protector with Battery Backup- 350VA

The Belkin SurgeMaster Battery Backup offers the most complete protection from damage to home or office workstations caused by power disturbances. Our complete power-protection solution safeguards your valuable equipment and critical data from blackouts, brownouts, surges, spikes and lightning.

$141 Save $48
WebCode BEL0351

Belkin 15.4" Laptop Messenger Case

The NE-MS 15" Messenger Case by Belkin stores your laptop in a stylish, removable sleeve for added protection and offers unique feature rich storage for your personal items. The lightweight NE-MS range is available in a great variety of colours, with a choice of either microfibre or canvas materials.

$77 Save $22
WebCode BEL4569

Belkin FireWire 6-Port Hub

The latest innovation from Belkin delivers six peer-to-peer FireWire ports that support data throughput of up to 400Mbps. Our new FireWire 6-Port Hub connects seamlessly with your FireWire DV camcorders, web cams, FireWire storage devices, scanners, printers, and other DV-compatible multimedia devices.

$66 Save $13
WebCode BEL2825

Belkin SleeveTop

The SleeveTop's unique design allows you to comfortably use your laptop on a couch, bed, table or anywhere in your home. It also allows you to easily open and use your laptop without removing your laptop from the case. This case not only protects your laptop when not in use, but protects your lap from heat when your laptop is in use! When you want to move your laptop, the SleeveTop makes it easy to transport room to room with convenient handles.

$53 Save $16
WebCode BEL0409

Belkin 2-Port KVM Switch with Built-in Cabling, USB

This Switch provides an affordable KVM solution that saves workspace while giving you control of two USB computers from one console. Its compact design with 8-foot, built-in cabling saves you time on installation, space on your desktop, and money you don't have to spend on cables and peripherals.

$72 Save $17
WebCode BEL0293

Belkin AC Anywhere DC-AC Inverter 140W

Running out of power is a thing of the past with the AC Anywhere. Simply plug the unit into any 12-volt DC vehicle cigarette lighter socket and the AC Anywhere converts your vehicle's battery power to 230 volts AC (common household current.) The AC Anywhere is perfect for charging batteries for your mobile phone or portable computer, electric shaver.

300W (BEL4123) $79

$63 Save $17
WebCode BEL4124

Belkin TuneCast 3

Now you can play your tunes in your car on any MP3 player, computer, or laptop to listen to your favorite tunes through any FM stereo receiver. The Belkin TuneCast 3 connects portable music players to your car or home stereo quickly and easily over FM radio waves.

$70 Save $29
WebCode BEL4922

Belkin Flip Case for 5G iPod

This innovative case for the stunning new 5 Generation iPod helps you get the most from this new music and video marvel. The Case offers a snug fit with premiere quality leather construction to protect your iPod as you take it with you on the move. Built-in cable management ensures easy access and quick storage when you need it. All Belkin iPod accessories come with an unbeatable lifetime warranty to ensure your complete satisfaction.

$24 Save $19
WebCode BEL4073

Belkin Wireless Keypad with Multimedia Controls

The Wireless USB Mini Keypad is perfect and smart solution for spreadsheet, accounting and financial applications that require fast and accurate entry of numeric data. "Provides a workplace free of cables"

$55 Save $14
WebCode BEL2925

Peripherals

Did you know that you can get up to 3% rebate on every order?

3% rebate smart BUY club

See page 46 for details!

Digital Still & Video Cameras

Exigo 1GB Secure Digital (SD) Card

Storing and moving data has never been so easy! With capacities ranging from 512MB to 2GB, you finally have full flexibility in storing and moving data. Exigo memory cards offer the best value for money on the market today!

- 512MB (EXI0003) $19
- 2GB (EXI0005) $56

Exclusive to City Software

$32 Save $37
WebCode EXI0004

Secure Digital Cards

SanDisk Secure Digital Card

- 512MB (SIM0387) $22
- 1GB (SIM0388) $34
- 2GB (SAN0030) $59

SanDisk Secure Digital Ultra

- 1GB (SIM5987) $38
- 2GB (SIM0457) $68

Compact Flash Cards

SanDisk

- 1GB (SIM0191) $36
- 2GB (SIM0690) $65
- 4GB (SAN0036) $125

SanDisk Ultra II

- 1GB (SIM1002) $62
- 2GB (SIM0691) $76
- 4GB (SAN0023) $142
- 8GB (SAN0037) $282

XD Picture Cards

Olympus

- 1GB (OLY0102) $69
- 2GB (OLY0083) $95

SanDisk

- 512MB (SIM0382) $42
- 1GB (SAN0038) $56

Memory Stick

Memory Stick Pro Duo

- 1GB (SAN0025) $51
- 2GB (SAN0028) $92
- 4GB (SAN0053) $172

OVER 17,000 PRODUCTS ONLINE at csw.com.au & choose to pickup or delivery

Canon Digital Camera A450 5MP

Fast, affordable and feature packed, all within a pocket-sized body. The easy to use PowerShot A450 is the perfect camera for newcomers to digital photography. With a high resolution 5.0MP sensor and a Canon 3.2x optical zoom lens this camera is capable of capturing images that will produce superb prints up to A3 size.

BEST BUY UNDER $200

5 Megapixel
3.2x Optical Zoom
2" LCD Screen

$165 Save $34
WebCode CAN0611

Kodak Digital Camera C743

- 7.1 MP camera for prints up to 20 x 30 in. (50 x 76 cm)
- 3X optical zoom lens
- 2.4 in. (6.1 cm) indoor/outdoor color display
- VGA video (640 x 480 at 30 fps)
- Picture enhancing features
- On-camera Share button

7.1 Megapixel
3x Optical Zoom
2.4" LCD Screen

$198 Save $51
WebCode KOD1743

Canon Digital Camera Ixus 60

The 6.0 Megapixel IXUS 60 offers a sharp combination of cutting edge technology and ultra compact style. The DiG!C II processor delivers fast performance and industry leading image quality. Featuring Canon's revolutionary UA lens technology, the fully retractable 3x optical zoom lens deliver sharp, high resolution images. True to life photo prints straight from the camera are a snap thanks to the Canon Print/Share Button and its huge LCD monitor is the perfect way to review photos and movie clips.

6 Megapixel
3x Optical Zoom
2.5" LCD Screen

$374 Save $75
WebCode CAN0495

Sony Digital Camera DSCT10W

A stylish, super slim-line Cyber-shot, the ultra-compact 7.2 Megapixel DSCT10 takes the fuzz out of your photos with Double Anti-Blur. With Super SteadyShot Optical Image Stabilisation and High ISO Sensitivity, the DSCT10 can capture stunning shots that won't be ruined by camera shake or fast moving subjects. Share your photos as slide shows set to music with family and friends on the extra-large 2.5" Clear Photo LCD Plus screen or connect to the TV.

7.2 Megapixel
3x Optical Zoom
2.5" LCD Screen

$498 Save $51
WebCode SNY6307

For our complete range list of digital still & video cameras visit www.csw.com.au/cameras

Olympus Digital Camera MJU770SW

The Tough 770SW is the most rugged camera yet to be released by Olympus. With strong features such as waterproof to 10m, shockproof, crushproof, snowproof, shakeproof and nightproof - its no wonder the Tough 770SW is all the proof you need!

The Tough 770SW is also the world's first digital camera to offer a built-in LED Macro Capture light ensuring close up shots underwater are clear and crisp every time.

7.1 Megapixel
3x Optical Zoom
2.5" LCD Screen

$563 Save $36
WebCode OLY0108

Sony Digital Camera DSCN2

Snap crystal clear images and share them straight away on the DSCN2. The high resolution 3.0" LCD lets you enjoy your photos as a slide show with background music. Equipped with a precision Carl Zeiss lens and High ISO Sensitivity your images will be crystal clear with reduced noise. The touchscreen display lets you access the camera menu and settings with ease, without the need for complicated buttons. Using the Paint function you can decorate your images with drawings and stamps for that personalised touch.

NEW

10.1 Megapixel
3x Optical Zoom
3" LCD Screen

$732 Save $17
WebCode SNY0138

Canon Digital Video Camera MV940

An easy to use, Real Widescreen camcorder with powerful zoom and photo capture.

Designed for ease of use, the compact MV940 is a Real Widescreen camcorder featuring photo capture. Its 25x optical zoom lens, DiG!C DV signal processor and 800K pixel CCD deliver high quality video, perfect for viewing on a widescreen TV.

- Stylish and compact, designed for simple operation
- 2.7" Widescreen LCD and Real Widescreen recording for breathtaking playback
- Shoots photos to SD card

800K CCD
25x Optical Zoom
2.7" LCD Screen

$519 Save $80
WebCode CAN0490

Sony 30GB Handycam DCRSR40

The DCRSR40 features a 30GB Hard Disk Drive to store all of your video footage and still images with up to 21 hours of recording time. 20x Optical/ 800x Digital Zoom, Carl Zeiss Vario-Tessar Lens, and 2.5" Touch Screen LCD makes capturing your video footage simple and easy, together with Sony unique features such as One Touch DVD Burn, Easy PC Back up and HDD SmartProtection system incorporating Video Stream Buffer.

30GB Harddisk
20x Optical Zoom
2.5" LCD Screen

$973 Save $126
WebCode SNY0079

CAN THE DEAL GET BETTER?
Call 1300 658 600 or visit www.csw.com.au as prices may change due to the daily fluctuations and online discounts. Save price is calculated off the RRP

SONY Canon OLYMPUS Kodak

Exigo Silverblade USB 2 flash Drive

Storing and moving data has never been so easy! The new Exigo Flash Drives come in a stylish, iPod-like casing, sporting a fast USB 2.0 controller. With capacities including 2GB & 4GB you finally have full flexibility in storing and moving data. Exigo Flash Drives offer the best value for money on the market today!

Features:
- Exceptionally stylish and trendy look
- Designed to utilize the high bandwidth of USB 2.0 interface
- Ready to withstand harsh working environments and protect valuable data
- Capacity 2GB & 4GB
- No Driver Required, except on Windows 98SE
- Password protected for increased security (30 days trial)
- Bootable

2GB $47 Save $42
WebCode EXI0001

4GB $94 Save $75
WebCode EXI0002

Exigo 1GB Secure Digital (SD) Card

Storing and moving data has never been so easy! With capacities ranging from 512MB to 2GB, you finally have full flexibility in storing and moving data. Exigo memory cards offer the best value for money on the market today!

- Stylish and trendy look
- Designed to utilize the high bandwidth of SD interface
- Ready to withstand harsh working environments and protect valuable data
- Capacity 512MB, 1GB & 2GB Capacities

512MB (EXI0003) **$19**

2GB (EXI0005) **$56**

Exigo MP3 Player

Flash-based MP3 players changed the way people share their passion for music. With the Exigo MP3 Players line you can enjoy a wide range of functions and crystal clear quality of sound at a reasonable price.

- ID3 text display: Seven colour backlight
- Music Format: MP3 or WMA
- Equalizer Mode: 7 different modes (Natural, Rock, POP, Classic, Soft, Jazz, DBB)
- 5 Playing Modes: Cycle one/ Cycle all/ Play random/ Play normal/ Special preview mode
- 1 pc AAA battery: Can play more than 6 hours
- Integrated FM Radio
- Voice recording: 270mins per 64MB
- Frequency Response: 20Hz-20KHz
- Warranty: 2 Years
- Support OS: Windows 98/Me/2000/XP/Mac OS 9.X/Linux 2.4.X

1GB - 250 Songs $48 Save $40
WebCode EXI0006

2GB - 500 Songs $71 Save $58
WebCode EXI0007

1GB $32 Save $37
WebCode EXI0004

SanDisk Memory Cards
Optimal Speed. High Quality

SanDisk memory cards delivers reliability in a variety of capacities and formats to allow you to get the most out of your digital camera, digital music player, voice recorder, handheld PC, camcorder, mobile phone and portable gaming device.

Compact Flash 1GB (SIM0191) **$36**

Secure Digital 1GB (SIM0388) **$34**

Memory Stick PRO Duo 1GB (SAN0025) **$48**

Mini SD 1GB (SAN0021) **$48**

Micro SD 1GB (SAN0051) **$45**

SanDisk Ultra II
Action Photography. Professional Results.

SanDisk Ultra II cards are unbeatable and best-in-class:
* Write speed (mini) = 9MB/sec / Read speed (mini) = 10MB/sec
* Features high density flash memory and optimized controller technology lets you save large image files faster

Lifetime Warranty

Ultra II CF Card 1GB (SIM1002) **$42**

Ultra II SD Card 1GB (SIM5987) **$38**

Ultra II SD Plus 1GB (SAN0027) **$46**

Ultra II Memory Stick Pro Duo 1GB (SAN0065) **$57**

SanDisk Cruzer Micro U3

SanDisk Cruzer Micro new design is a small, smart and secure USB Flash Drive.

- Small, compact light weight design
- New retractable USB slider eliminates the need for caps
- U3 smart enables you to take your portable applications on the go
- Preloaded with U3 software: CruzerSync, SignupShield, SKYPE and AVAST

2GB (SAN0061) **$62**

4GB (SAN0062) **$116**

1GB $35 Save $14
WebCode SAN0060

SanDisk Titanium U3

The New look Cruzer Titanium is fast, strong and unbeatable:

- Strong Liquidmetal casing crush resistant over 2,000lbs
- Retractable USB slider eliminates the need for caps
- Lightning speed of 15MB/s read speed & 9MB/s write speed
- U3 smart enables you to take your portable applications on the go
- Preloaded with U3 software: CruzerSync, SignupShield, SKYPE and AVAST

2GB (SAN0069) **$68**

1GB $49 Save $20
WebCode SAN0068

Sandisk Cruzer Profile 1GB

SanDisk's Cruzer Profile provides the ultimate in data security:

- Fingerprint identification technology
- Added personal security capability to safeguard data and IE passwords
- Write speed (minimum) = 5MB/second / Read speed (minimum) = 8MB/second

1GB $54 Save $15
WebCode SAN0026

Blueant X3 Micro Bluetooth Headset

The award winning X3 micro Bluetooth headset is one of the smallest and best performing headsets available in the world. Lightweight, stylish and comfortable, the X3 micro is the ultimate Bluetooth accessory for people on the move. The X3 micro can be paired to 3 different Bluetooth devices and comes with multiple charging options including USB, wall and in car chargers.

$87 Save $42
WebCode BLU0008

Blueant EzyTalk Bluetooth Handsfree Car Kit

The totally wireless EzyTalk Bluetooth plug and go handsfree car kit offers both excellent sound quality and zero installation costs. The microphone and speaker are integrated in a stylish and compact design with a DSP (Digital Sound Processor) to minimise echo effect and background noise. The EzyTalk is powered by the vehicle lighter socket.

$118 Save $21
WebCode BLU0009

Blueant Supertooth II Bluetooth Speakerphone

This speakerphone provides the user with exceptional sound quality via totally wireless Bluetooth technology. Mounted on a magnetic dip attached to the vehicle sun visor, the Supertooth II is the ideal Bluetooth handsfree solution requiring zero installation costs, as well as the ability to change vehicles quickly and easily.

$159 Save $40
WebCode BLU0007

BUY ONLINE at CSW.com.au & choose pickup or delivery

Input Devices

Comsol USB Cables

- Comsol 2 mtr USB 2.0 Peripheral cable type A male-B male – 480Mbps (COM8930) $11
- Comsol 3 mtr USB 2.0 Peripheral cable type A male-B male – 480Mbps (COM8935) $14
- Comsol 5 mtr USB 2.0 Peripheral cable type A male-B male – 480Mbps (COM8940) $19

Comsol Firewire Cables

- Comsol 2mtr IEEE1394 FireWire Cable – 4 pin to 4 pin (COM6105) $17
- Comsol 4.5mtr IEEE1394 FireWire Cable – 4 pin to 4 pin (COM6110) $24
- Comsol 2mtr IEEE1394 FireWire Cable – 6 pin to 4 pin (COM6120) $16
- Comsol 4.5mtr IEEE1394 FireWire Cable – 6 pin to 6 pin (COM6135) $25

Comsol Ethernet Patch Cables

- Comsol 1 mtr RJ45 Cat 6 Enhanced Patch Cable Blue (COM9045) $10
- Comsol 3mtr RJ45 Cat 6 Enhanced Patch Cable Blue (COM0112) $15
- Comsol 5mtr RJ45 Cat 6 Enhanced Patch Cable Blue (COM9090) $22
- Comsol 10mtr RJ45 Cat 6 Enhanced Patch Cable Blue (COM9105) $27
- Comsol RJ45 Cat 6 Patch Cable (Blue) - 25m (COM0118) $33
- Comsol RJ45 Cat 6 Patch Cable (Blue) - 0.5m (COM9030) $7

AUSTRALIA'S BEST PRICES at CITY SOFTWARE 1300 658 600

Microsoft LifeChat ZX-6000

This comfortable headset features a Windows Live™ Call Button that makes calling fast and easy, wireless 2.4-GHz technology up to 30 feet, and an advanced battery that lets you talk up to eight hours between charges.

$79 Save $19
WebCode MST8458

Microsoft's LifeCam NX-6000

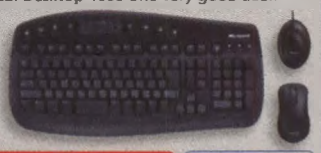
Notebook Mobility, High Definition Video and photos. Includes carry case.

Whether you're at home, in the office, or on the road, keeping in touch with friends, family, and business associates is easy with the Microsoft LifeCam NX-6000. This compact, reliable webcam was designed especially for notebook computers.

$134 Save $45
WebCode MST8432

Microsoft Wireless Desktop 1000

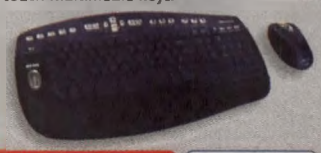
Microsoft Wireless Optical Desktop 1000 offers a complete desktop solution. You get the features that make life easier, like wireless freedom, precision optical performance, and one-touch Hot Keys. All that, plus the reliability you expect from Microsoft, makes Wireless Optical Desktop 1000 one very good deal.



$59 Save $20
WebCode MST8356

Microsoft Wireless Optical Desktop Elite BT

Get the ultimate in performance, style, and comfort in a single package. Give your desktop all the best wireless features and functionality, with a cushioned palm rest, a Microsoft Wireless IntelliMouse Explorer with revolutionary Tilt Wheel Technology and one-touch multimedia keys.



$152 Save $47
WebCode MST8348

Microsoft Basic Optical Mouse

Navigate quickly and easily with the convenient scroll wheel and work on virtually any surface. Get one-click access to frequently used features with customisable buttons.

$20 Save $5
WebCode MST8404

Microsoft Wireless Presenter 3000

Best with Microsoft Office PowerPoint

Effortlessly deliver your best PowerPoint presentations with the Microsoft Presenter 3000. With built-in cursor control you can interact with your slides and the Presentation Timer with Vibration Alert keeps you on time, every time. Highlight important details with the laser pointer and enjoy the wireless 50' range.

$77 Save $12
WebCode MST8455

Wacom Intuos3

Seriously-enhanced, Interactive & Creative

Intuos3 is the industry standard graphics tablet for digital art, animation, image editing and computer graphics. The Intuos3 features ExpressKeys and Touch Strip(s) can substitute all common modifiers and shortcuts, whilst the ergonomic pen delivers professional level functionality.

- 1024 levels of pressure sensitivity in the battery free and cordless pen
- 64 degrees of tilt sensitivity
- 8 express keys and 2 touch strips
- 5080 lines per inch resolution
- 200 points per second report rat
- USB connectivity for PC and Mac

Academic 6x8 (WAC9983) $327

Intuos3 9 x 12 (WAC0930) $647

Intuos3 12 x 19 wide format (WAC1231) $1042

Intros3 8x8
$484 Save $68
WebCode WAC0630

Wacom BIZ Tablet

The ideal tool to enhance your presentations!

Compact and portable with a host of powerful features, the BizTablet will revolutionize your presentation and communication abilities.

With the two programmable function keys on the tablet and two programmable side-switches on the pen, you can set any shortcuts you prefer.

Make handwriting notes directly into your documents.

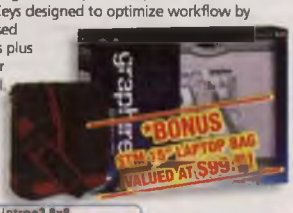
- Tablet size: 156(W) x 139(D) x 13.5 (H) mm
- Active area: 81x58 mm
- 512 levels of pressure sensitivity

Bundled Software:
JustWrite Office – Lets you directly write into your documents.

$61 Save $9
WebCode WAC0105

Wacom Graphire Bluetooth (6x8) – Wireless Freedom Academic

With the new Graphire Bluetooth you have the ability to do pen based drawing, sketching, illustration and powerful presentations where and when you want - without any annoying cabling. A battery life of up to 25 hours, two on-tablet programmable ExpressKeys designed to optimize workflow by providing quick access to commonly used modifiers, mouse-clicks, and keystrokes plus a 4 meter cable on the universal power adapter make it a very convenient tool.



Bundled software:
- Adobe Photoshop elements 3
- Corel Painter Essentials2
- Inspiration

Academic 6x8 (WAC9980) $367

*Via redemption Until 31st March 07 see www.csw.com.au for more details

Intros3 8x8
$367 Save $32
WebCode WAC9980

Wacom Graphire4 4X5 Scrap Booking Starter Kit

The Wacom Graphire4 4x5 pen tablet is the ideal tool for enhancing digital photos, adding borders, graphics, text and special effects, to dramatically increase Scrapbookers' creative options. Working digitally allows you to experiment with different combinations without affecting your original files or making costly mistakes. Give your scrapbooks the digital edge!

- This pack includes 90 sheet 8x8 Paper Block, acid and Lignin Free, in 30 different designs. Bonus value $69.95 value
- Image Blender3 Software

Advanced Kit 6x8 (WAC9981) $236

$127 Save $22
WebCode WAC9982

Call 1300 658 600 or visit www.csw.com.au as prices may change due to the daily fluctuations and online discounts. Save price is calculated off the RRP

Microsoft WACOM

Aten Slideaway 15" LCD Console

Integrated KVM console featuring a 15" LCD monitor.
- 1U high rackmount Slideaway housing.
- Internal power supply.

CL-1200MA Aten Slideaway 17" LCD Console (ANY0269) $2046

$1887 Save $213
WebCode ANY0266

Aten 8 Port Slideaway Rackmount PS2 KVM with 15" LCD Display

Integrated KVM console featuring a 15" or 17" LCD monitor in 1U high rack mountable Slideaway housing. Daisy chain up to 31 additional CS1208 or CS1216 units and control up to 512 computers.
- Internal power supply.
- Port selection via Pushbutton, Hotkey and OSD.
- Two level password security

CL-1216LA 8 Port 17" LCD (ANY0270) $2627
CL-1208MA 16 Port 15" LCD (ANY0268) $2658
CL-1216MA 16 Port 17" LCD (ANY0271) $3053

$2246 Save $304
WebCode ANY0267

iRocks mp3 D5 FM Transmitter

MP3 Car DJ FM Transmitter, Now with track recognition.

Black (IRS0023) $58
Silver (IRS0024) $58
White (IRS0025) $58

Blue $58 Save $10
WebCode IRS0026

Sitecom Wireless Internet USB Phone

This Wireless Internet Phone enables you to make free calls to anywhere in the world via the Internet. Simply plug the included USB adapter into a free USB port in your PC or notebook, and you'll be making Internet telephone calls on your wireless handset

$77 Save $11
WebCode ANY0388

USB 2.0 VoIP Phone

Offers USB2.0 interface and built-in 16bit sound card, and can be installed without driver under Win98SE/ Win2000/Win XP/Mac OS9/Mac OS X.

$22 Save $7
WebCode ANY0389

TP-link 108m wireless router with 4 port switch

108M Wireless LAN Router, 2.4GHz, 802.11g/b, built-in 4-port Switch. Adopts 108M Super GTM and 2x to 3x eXtended RangeTM technologies, Access Control, Integrated Firewall, Detachable antenna.

$85 Save $4
WebCode ANY0305

iRocks Web Camera

350K USB Web Camera Black (640x480 res) with Microphone Headset

Black $44 Save $5
WebCode IRS0038

Mediagate 3.5" Wireless Hard Disk Media Player

The MG-350HD is so simple to use!
Simply download movies, music or photos from the internet or through a P2P program; save the contents into a 3.5" HDD (to be purchased separately); stream the contents from a PC through a wireless LAN connection and then connect the unit to your TV to watch movies, listen to music or look at photos.
- Supports HD MPEG-2 and MPEG-4 files
- Supports JPEG, BMP, GIF and PNG still picture.
- Supports DVI, composite, S-video and component video outputs.
- 11g wireless connection and 10/100 ethernet port.
- USB 2.0 host port; USB storage devices can be attached and the stored content can be played directly.

Mediagate portable multimedia player/3.5 hdd enclosure (ALT2001) $235

$329 Save $70
WebCode ANY0349

Compro VideoMate USB 2.0 U500 Digital TV Stick With Remote Control

Watch free to air digital TV on your laptop or desktop PC. Thumb size USB 2.0 device with remote control. Supports up to 1080i HDTV, EPG, subtitles and teletext. Software can allow you to setup the TV as your desktop wallpaper. Advanced PIP/POP feature can open up to 4 channel windows. Watch and play recorded TV at the same time.

$76 Save $13
WebCode ANY0357

Portable USB 2.0 Card Reader

Supports MMC, MMC4.0, RS MMC, RS MMC4.0, SD, Mini SD & T-Flash Cards.

Black $16 Save $7
WebCode IRS0041

Plantronics Premium Bluetooth Headset

The Plantronics Discovery 655 Bluetooth headset fuses cutting-edge technology with a sleek, ultra-light and discreet design to deliver a mobile experience unlike any other. With Digital Signal Processing (DSP), the latest in audio technology, the Plantronics Discovery 655 reduces noise levels to provide enhanced sound for clear conversations.

$169 Save $10
WebCode PLA0032

Plantronics Audio 910 Bluetooth Headset with USB dongle

The Plantronics .Audio 910 Bluetooth Headset offers true plug-and-play wireless connectivity for internet calling. Ideal for the multi-device user, the Audio 910 headset offers multipoint technology to let you seamlessly switch between Bluetooth enabled Internet calls and mobile phones.

$172 Save $17
WebCode PLA0033

Plantronics Audio 550 USB Headset

The Audio 550 DSP is ideal for gaming, music, Internet talk, video conferencing, and voice applications. It features PerSono™ Audio Control Center Software and 40mm speakers that convey music and gaming with dynamic bass response.

$110 Save $19
WebCode PLA0025

Computer Accessories

DELIVERY - FAST & RELIABLE at CITY SOFTWARE 1300 658 600

Logitech V270 Cordless Optical N/book Mouse for B/tooth

No receiver needed! Instantly connect the Logitech V270 Cordless Optical Notebook Mouse for Bluetooth to your Bluetooth-enable laptop. Wireless technology, without the hassle of cords or receivers.

$63 Save $27
WebCode LOG3534

Logitech LX5 Cordless Optical Mouse

The Logitech LX5 Cordless Optical Mouse installs effortlessly and reduces desktop clutter. It features Smart Power Management technology for extended battery life.

$35 Save $15
WebCode LOG3509

Logitech V100 Optical Mouse For Notebooks

The Logitech V100 Optical Mouse for Notebooks is convenient to carry, simple to use, and much more comfortable than the touchpad.

$33 Save $3
WebCode LOG3557

Logitech Noise Cancelling Headphones

Cancel out distractions and escape with your music. With SilentSound active noise-cancelling technology.

$197 Save $53
WebCode LOG3543

Logitech Cordless Internet Handset

The familiarity and ease-of-use of a premium cordless phone.

The Logitech Cordless Internet Handset brings the familiarity and ease-of-use of a premium cordless phone to free Skype calls. Stay close to friends and family, not your computer — the phone works at a distance of up to 164 feet (50 meters) away from your PC, while the color LCD displays available Skype contacts, Skype Voicemail notifications, caller ID, call waiting, and call history information. Premium appearance, selectable ring tones, and convenient features such as an illuminated dial pad, hands-free speakerphone, belt clip and headset jack make the phone a pleasure to use.

Skype Ready

$114 Save $36
WebCode LOG3585

Logitech QuickCall USB Speakerphone

Crystal clear, digital audio for group and private Internet calling.

Enjoy natural conversations—handsfree and headset-free with the QuickCall speakerphone. A dual microphone array and RightSound technology provide echo free Internet calls. QuickCall features one-touch call management and volume control so you can easily answer, mute and hang up your calls. To make your call private, simply plug a headset into the built-in audio jack.

NEW

Skype Ready

$126 Save $54
WebCode LOG3613

Logitech Quickcam Sphere MP

The updated version of the QuickCam® Sphere MP webcam, with RightLight 2 Technology and support for HD video, includes a motorized camera head that, combined with intelligent face tracking software, follows a subject – up and down, or left and right – as that person shifts in a chair or moves freely about the room. The webcam can cover 190 horizontal degrees and 100 vertical degrees of a room.

Skype Ready

$192 Save $57
WebCode LOG3595

Logitech QuickCam FUSION

Logitech® QuickCam® Fusion™ provides true 1.3 mega-pixel sensor quality with Logitech RightLight™ Technology combined with a high quality audio via a built-in microphone and Acoustic Echo Cancellation (AEC) and noise reduction technology for hands free/headset free VideoCalling. Its monitor front design also provides improved eye-to-eye contact. USB 2.0 HS certified.

Skype Ready

$129 Save $51
WebCode LOG3536

Logitech QuickCam Communicate STX

QuickCam® Communicate STX takes your video communications to the next level. Clear video with 640 x 480 VGA quality and RightLight™ Technology provides improved image clarity even in dim lighting, and your calls are always echo-free with the integrated microphone and RightSound™ Technology. Windows® 2000 & XP. 2-year warranty.

Skype Ready

$72 Save $27
WebCode LOG3604

Logitech QuickCam for Notebooks

Portable and easy to use, Logitech QuickCam for Notebooks is a great way to stay connected at home or on the go. VGA-quality video, integrated microphone, and snapshots up to 1.3 megapixels (interpolated) make this camera a versatile performer. The compact design and included travel case allow you to take it anywhere.

Skype Ready

$51 Save $29
WebCode LOG3487

Logitech Premium Notebook Headset

Comfortable and adjustable, behind-the-head design. When not in use, it folds for storage into a protective travel case.

Skype Ready

$82 Save $17
WebCode LOG3573

Logitech USB Headset 250

The USB connection is truly plug-and-play, and the digital audio is rich and crystal clear. z The Logitech USB Headset 250 brings digital sound, convenience, style, and comfort together for an incredible audio experience. The headband and microphone adjust easily, and the boom microphone can even move completely out of the way when you want to listen to music.

$38 Save $12
WebCode LOG3556

Logitech Mobile Express Bluetooth Headset

The Logitech Mobile Express Headset features a fashionable, compact design at a very affordable price. The headset is also very lightweight — weighing just 0.6 ounces. It provides a secure and comfortable fit with its adjustable wrap-around earpiece and small in-ear speaker.

$46 Save $34
WebCode LOG3560

See page 46 for details!

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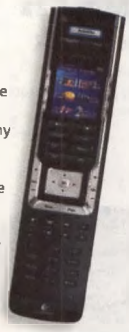
Logitech

Logitech Harmony 785

Finally, complete control with one remote. It's like having 15 remote controls in one. Control your entire home entertainment system with the touch of one button. Just choose "Watch a DVD" and the Harmony turns on your TV, DVD, Stereo receiver- even presses play. Logitech's online database includes 3,500+ brands, 125,000+ devices and growing daily so you're always in control. Easy to setup and easy to use - there's even a handy "HELP" button so that anyone from the kids to the babysitter can easily access their entertainment. Built-in interactive color LCD display and battery saving rechargeable design.



$276 Save $124
WebCode LOG3596

Logitech diNovo Edge

The world's most advanced keyboard, the ultra-slim diNovo Edge delivers ultimate feel and response with the PerfectStroke key system that eliminates slippage and makes every keystroke precise and fluid. Advanced Li-ion batteries charge faster and last longer in combination with a slim charging base that doubles as a stand. Bluetooth wireless ensures seamless, secure operation from up to 10 metres. For Windows XP & Vista.

$271 Save $79
WebCode LOG3605

Logitech Cordless Presenter

Take advantage of its 50-foot range to control your presentations while moving around an auditorium with confidence. A built-in LCD timer with vibration alerts helps you effectively manage your time.

$75 Save $24
WebCode LOG3495

Logitech Cordless Desktop S 510 with Media Remote

The Cordless Desktop S 510 with Media Remote is the first to enable remote control! Direct your own media show—from up to 5 m away. Ultra-flat keyboard offers leading-edge comfort. Superb cordless optical mouse with tilt wheel delivers fast, consistent performance. One-touch keyboard controls include random music play or quick image zooming.

$122 Save $57
WebCode LOG3515

Logitech EX-110 Cordless Desktop

The Cordless Desktop® EX 110 makes it incredibly easy and affordable to go cordless—in style. Quick, simple to set up, and completely reliable. Enjoy the freedom and precision of an 800-dpi optical mouse, plus one-touch controls that make music, Internet, and other frequent functions simpler. Superb quality and value.

$62 Save $17
WebCode LOG3507

Logitech Media Keyboard Elite

The spill-resistant Logitech Media Keyboard Elite features a thinner, flatter design that creates amazing comfort, plus one-touch controls for music, Internet, image zoom, and more.

$39 Save $11
WebCode LOG3502

Logitech Z-5500 Digital Speakers

Award-winning, high-fidelity digital surround sound.

Wake the neighbors with thumping, THX®-certified, 505-watt, 5.1 surround-sound audio; extreme-performance system works with your PC, home-entertainment system or mp3 player.

$533 Save $166
WebCode LOG3466

Logitech Z-2300 Speakers

Logitech's Z-2300 speakers deliver uncompromising THX-certified audio performance. Discriminating music lovers will appreciate its powerful, distortion-free bass, clear highs and rich mid-range.

$220 Save $80
WebCode LOG3455

Logitech X-540 5.1 Speakers

The Logitech X-540 speaker system is an affordable surround-sound system designed for gamers and enables people to enjoy the experience of surround sound even with two-channel audio sources, by including matrix surround-sound technology.

$154 Save $46
WebCode LOG3602

Logitech Z-10 Interactive speakers

Touch-sensitive multimedia controls and presets give you unprecedented control of your digital music. The innovative LCD display shows song information, a digital clock and other useful information.

$231 Save $69
WebCode LOG3593

Logitech V20 Notebook Speakers

Finally, get great audio from your laptop. The USB port provides power and digital quality audio—no other cables necessary. Innovative dynamic headroom technology and an active/pressure driver combination maximize bass response in a lightweight, portable design. Travel case included.

$82 Save $18
WebCode LOG3508

Logitech AudioStation for iPOD

The Logitech® AudioStation™ high-performance stereo system for iPod transforms any room in the home into a digital-music concert hall – delivering a full range of incredibly smooth, balanced audio, from floor-thumping bass to the precision high frequencies that bring music to life.

$396 Save $104
WebCode LOG3590

Logitech mm50 Portable Speakers iPod

The Logitech mm50 portable speakers for iPod offer customized iPod features, superb sound quality, and a built-in rechargeable lithium-ion battery.

$186 Save $44
WebCode LOG3511

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HP A3 Laser Photo Glossy 200 Sheet **(HPD6548)** $59

HP A4 Semi Gloss 170gsm 40 Sheet **(HPD2143)** $16

HP A4 Laser Photo Glossy 200 Sheet **(HPD6547)** $44

HP A4 Laser Photo Matte 100 Sheet **(HPD6550)** $24

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Kodak Premium 4 x 6 Glossy Photo Paper 100 Sheet Pack **(KOD7142)** $25

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Emtec CD-R 80 Min 52x Inkjet Printable 25 Pk

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- Certified by leading 52x drive manufacturers

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WebCode EMT0003

Emtec DVD-R 4.7GB 8x Inkjet Printable 25 Pk

Emtec DVD-R media have a high quality dye layer that ensures lower failure rates. Each disc is tested to meet Emtec's high standards to protect against the toughest environmental conditions.
Print super clean and crisp images and text to achieve professional results.

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WebCode EMT0005

Emtec DVD-RW 4.7GB 2x 10 Pk

Recording movies, creating interactive training, backing up or archiving massive amounts of data all these options are perfect for Emtec's DVD-RW media. Data retention is not a problem with the high quality standard materials used during manufacturing.
Store date with now worries with Emtec.

$15 Save $5
WebCode EMT0007

Emtec USB2 Flash Drive 1GB

Transferring files between Pc's and Mac's is now quick and easy thanks to the Emtec USB 2 flash drive. The USB drive is easy to use, portable and will work with any compatible computer with a USB port. Perfectly suited for moving data between school, office and home.
2 year warranty.

$24 Save $6
WebCode EMT0008

Emtec DVD+R Dual Layer 8.5GB 2.4x 5 Pk

Emtec Dual Layer DVD+R offer an unmatched storage capacity and high quality recording for sound and images. The two recording layers provide 8.5GB storage for data, music and video. 4 Hours in DVD quality or 16 hours in VHS quality. This write once media is for use only on DVD+RW dual layer recorders. Compatible with DVD & DVD Rom player.

$34 Save $6
WebCode EMT0006

Verbatim DVD+RW 4.7 GB Jewel Case 5 Pk 4x

- 1X-4X DVD+RW recording speed
- Compatible with 4X speed DVD+RW writers from Sony, HP, Dell and others.
- Super Eutectic Recording Layer optimizes read/write performance and durability
- Superior Archival Life
- Lifetime Warranty

$6 Save $2
WebCode VBM5043

Verbatim DVD+R 4.7GB HS Lightscribe Spindle 16x V1.2 10Pk

- Version 1.2 High Sensitivity Media- burns labels in a third less time than version 1.0 LightScribe media
- Compatible with DVD+R Hardware
- BURN music, digital photo albums, presentations and home movies directly on your DVD or CD.

$9 Save $4
WebCode VBM0126

Verbatim CD-R 80 Min 52x Spindle 50 Pk

- Compatible for maximum 52x speed recording
- Backward compatibility with existing 1x-48x drives
- Ideal surface for referencing using CD markers or labels
- Verbatim Lifetime Warranty

$16 Save $5
WebCode VBM4981

Verbatim CD-R 80 Min 52x Spindle 100 Pk

- Ideal for storing digital images, music and more
- Ultimate performance recording dye for burning at high speeds
- Record a CD in less than 2 minutes using a 52X CD drive
- Limited Lifetime Warranty

$29 Save $12
WebCode VBM4554

Verbatim DVD-R 4.7GB 16x White InkJet Printable 50 Pk

- 1X-16X DVD recording speed
- Full-color, high resolution, photo-quality printing
- Superior ink absorption
- Crisp & clear text reproduction
- Limited Lifetime Warranty

$30 Save $11
WebCode VBM1973

Verbatim DVD-R 4.7GB 16x White InkJet Printable 100 Pk

- 1X-16X DVD recording speed
- Full-color, high resolution, photo-quality printing
- Superior ink absorption
- Crisp & clear text reproduction
- Excellent ink drying time
- Limited Lifetime Warranty

$56 Save $22
WebCode VBM5153

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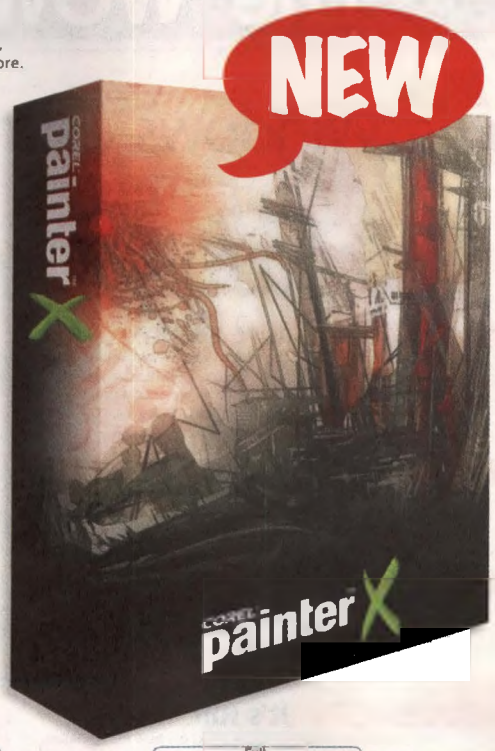
Verbatim

Corel Painter X

CoreCorel® Painter X, the world's most powerful Natural-Media software, offers artists and photographers professional art & design tools that are unmatched by any other product. Delivering the next-generation art studio, Corel Painter X blurs the line between traditional and digital art like never before. Complete with training videos by Painter Master Jeremy Sutton, artists can learn new techniques to create original works of breathtaking art. Setting the standard, Corel Painter X introduces unparalleled performance, new color and composition tools, and the revolutionary RealBristle Painting System that provides an organic painting & illustration experience- right down to the individual bristles on the brush.



Education	Save	Upgrade	Save	Full	Save
$144	$45	$352	$77	$658	$141
WebCode COR8702		WebCode COR8701		WebCode COR8700	

CorelDRAW Graphics Suite X3

Streamline your workflow with one complete package

Corel Draw Graphics Suite X3 is trusted by busy designers and business users to transform ideas into professional results – fast! With this comprehensive graphics suite, users can confidently tackle a wide variety of projects – from logo creation and web graphics, to multi-page marketing brochures, or eye-catching signs.

Upgrade (COR8325) $268
Academic (COR8327) $140

BONUS 40GB Hard Drive valued at $149*

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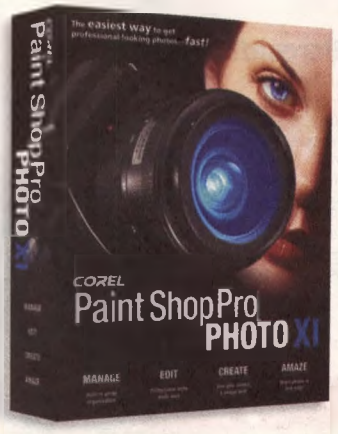
Upgrade	Save
$553	$196
WebCode COR8322	

Corel Paint Shop Pro Photo XI

The easiest way to get professional-looking photos - fast!

Corel Paint Shop Pro Photo XI is the ideal choice for anyone who wants extraordinary photos. Filled with one-of-a-kind photo tools, automatic photo fixes, precision editing controls and 100s of unique special effects filters, Paint Shop Pro Photo is sure to please everyone with a digital camera. Fix brightness, color and photo imperfections; create photo compositions full of depth and imagination; give photos a unique and exciting look, and there's a new built-in photo organiser to keep all your photos in order. Plus, with a Learning Center to help first time users get started, Paint Shop Pro Photo is the easiest way to get professional-looking photos - fast!.

Full (COR8932) $137
Upgrade (COR8937) $91



Education	Save
$88	$41
WebCode COR8935	

Corel Snapfire Plus

Ignite Photo Fun!

Whether you want to complete fun photo projects or share photos in new, entertaining ways, Snapfire Plus is for you!

$29	Save $70
WebCode COR8934	

Corel Painter Essentials 3

A complete home digital art studio that helps you turn photos into stunning paintings. Capture your special memories with beautiful, hand-made digital art keepsakes, perfect for sharing with friends and family, and for framing. It's never been easier to learn how to draw and paint, with the included video training and tutorials.

$154	Save $45
WebCode COR8683	

Corel WordPerfect Office X3 Home Edition

Built for the way you use your home computer, includes easy-to-use software for word processing, spreadsheets, photo and video editing, CD burning, internet security, and more!

$159	Save $40
WebCode COR8324	

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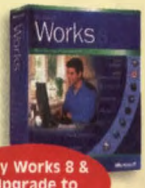
- Helps students get homework done quickly and confidently
- Provides guides & templates for common homework tasks
- Helps students understand and tackle Maths problems
- Includes Encarta for reliable & trusted research

$117 Save $33
WebCode MSC2939

Microsoft Works 8

Works 8 is the latest version of the popular essential home productivity software. It includes a word processor, spreadsheet, database and calendar. Plus, Works 8 has new, professionally designed templates and a new tool to help organise common projects.



Buy Works 8 & Upgrade to Office for less!

$79 Save $21
WebCode MSC2920

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It's more secure.

Windows Vista is more secure than prior versions of Windows. Help protect private information and remove spyware with Windows Defender™. Keep children safer online than with previous versions of Windows with improved, customisable Parental Controls.

New Phishing Filter in Internet Explorer® 7.

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Find applications, documents, e-mail, photos and more in a snap with Instant Search. Add tags and meta data to files for quicker access. Add Windows Sidebar Gadgets – customisable mini-applications that display news and more at a glance.

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Help protect your personal data against loss with new automated scheduled backup in Enhanced Backup and Restore. Quickly add memory to a PC using Ready Boost for Windows Vista.

Easily synchronise information between computers and devices with Sync Center.

It's fun.

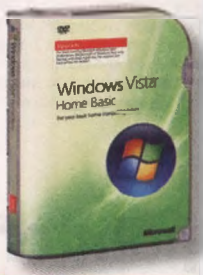
Edit and share memories easier using the new Photo Gallery. Edit HD home movies and easily publish to a video DVD using Windows Movie Maker and Windows DVD Maker. Take gaming to the next level with ultra-vivid DirectX® 3-D graphics. Windows Media Center functionality now in most versions.

Microsoft Windows Vista Home Basic Upgrade

Windows Vista Home Basic.

The essentials you need. The easier and safer Windows operating system for your basic home computing needs.

Home Basic Full (MSA5102) $342



$179 Save $20
WebCode MSA5101

Microsoft Windows Vista Home Premium Upgrade

For the best home computing and entertainment.

The preferred edition of Windows Vista for home desktop and mobile PCs. Delivers enhanced productivity and entertainment at home and on the go—making it easy to enjoy digital photos, music, TV, games and movies, while providing a whole new level of security and reliability on desktop and mobile PCs.

Home Premium Full (MSA5103) $405

Home Premium Academic Upgrade (MSA5105) $159

$269 Save $30
WebCode MSA5104

Microsoft Windows Vista Business Upgrade

Work efficiently with confidence every day.

Windows Vista Business is for businesses of all sizes. It enables individuals and organisations to lower their PC management costs, improve security, enhance productivity and stay better connected.

Business Full (MSA5106) $515

$348 Save $31
WebCode MSA5107

Microsoft Windows Vista Ultimate Upgrade

The most complete edition of Windows Vista™

Windows Vista Ultimate is the greatest Windows Vista experience available. It's got the power, security and mobility features you need for work, and the Media Center entertainment and ease you want for fun.

Ultimate Full (MSA5108) $688

$454 Save $41
WebCode MSA5109

Microsoft Live OneCare

The All in One Security and Performance Service for your Windows® XP or Windows Vista™-based PC

Windows Live™ OneCare™ helps protect your computer, and its automated optimisation features keep your PC running at its speediest. OneCare even regularly backs up your important files. You get all this in one convenient package.

$77 Save $23
WebCode MSA6100

Microsoft Project Standard 2007

Improve the organization of your projects and people with the scheduling power and capabilities of Office Project Standard 2007. With robust management tools, you can stay informed and control project work, schedules, and finances, keep teams aligned, and be more productive because Project 2007 not only delivers powerful reporting, guided planning, and flexible tools; it integrates seamlessly with other Microsoft Office system programs for easy efficiency.

$935 Save $98
WebCode MSA6142

Visual Studio 2005 Professional Edition

The comprehensive tool for developers working alone or in small teams to deliver the full range of applications on the Microsoft platform. Intuitive and powerful, Visual Studio Professional 05 speeds the development, debugging, and deployment of applications for Windows, the Web, and mobile devices.

Pro. Edition Upg (MSA9847) $821

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WebCode MSA9846

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Microsoft

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Microsoft Office

Why buy Microsoft® Office 2007?

Create great-looking documents.

- Create great-looking documents faster and easier using improved picture, charting and graphics tools with SmartArt™ Graphics.
- See formatting changes in one click using Live Preview.
- More stable and consistent formatting (bullets and numbering).
- New shading and colour in Excel® data fills that make eye-catching spreadsheets.

Easily find commands that help to get you started.

- Streamlined User Interface.
- Menus to help you find commands when you need them.
- Screen tips, integrated Help, step-by-step online tutorials.

Get tasks done with confidence and security.

- Recover documents lost while working during inopportune system problems through the Document Recovery Tool.
- Remove comments, hidden text and personal information from documents with Document Inspector.
- Convert documents, spreadsheets and presentations into PDF and XPS file formats so you can easily share them with others.
- Help block viruses and stop spam with improved junk e-mail filter and anti-phishing tools in Office Outlook® 2007.

Organise information and manage communications.

- View, organise and search e-mail, calendar and tasks at the same time using the To-Do Bar in Office Outlook 2007.

	Microsoft Office Home Student 2007	Microsoft Office Standard 2007	Microsoft Office Small Business 2007	Microsoft Office Professional 2007	Microsoft Office Ultimate 2007 NEW
Microsoft Office Word 2007	•	•	•	•	•
Microsoft Office Excel 2007	•	•	•	•	•
Microsoft Office PowerPoint 2007	•	•	•	•	•
Microsoft Office Outlook 2007		•			
Microsoft Office Outlook 2007with Business Contact Manager			•	•	•
Microsoft Office Accounting Express 2007			•	•	•
Microsoft Office Publisher 2007			•	•	•
Microsoft Office Access 2007				•	•
Microsoft Office InfoPath 2007					•
Microsoft Office Groove 2007					•
Microsoft Office OneNote 2007	•				•
Microsoft Office Communicator 2007*					
Microsoft Office Enterprise Content Management					•
Microsoft Office Electronic Forms					•
Advanced Information Rights Management and Policy Capabilities					•

Microsoft Office Home and Student 2007

Create great looking documents quickly and organise information easily.

The essential software suite for home computer users that makes it easier and more enjoyable for you to get things done with confidence.

$217 Save $32

WebCode MSA6101

Microsoft Office Professional 2007 Academic

Work efficiently with powerful productivity, contact management and database software.

Microsoft Office Professional 2007 is a complete suite of productivity and database software that will help you save time, stay organised and effectively manage information.

Microsoft Office Professional Upgrade 2007 (MSA6109) **$487**

Microsoft Office Professional Full 2007 (MSA6108) **$751**

$247 Save $52

WebCode MSA6107

Microsoft Office Standard 2007 Upgrade

Quickly create great-looking documents and manage e-mail with improved tools and security.

The new streamlined interface, improved formatting and graphics tools, and enhanced security and reliability help you get things done with confidence.

Microsoft Office Standard Full 2007 (MSA6103) **$633**

$377 Save $22

WebCode MSA6104

Microsoft Office Small Business 2007 Upgrade

Work efficiently with easy-to-use productivity, contact management and marketing software.

Save time and stay organised with Microsoft Office Small Business 2007. Work effectively, manage customer information in one place, and produce marketing materials and campaigns in-house.

Microsoft Office Small Business Full 2007 (MSA6105) **$691**

$447 Save $52

WebCode MSA6106

Microsoft Office Ultimate 2007 Upgrade

A complete set of tools for saving time, managing information and staying connected.

Get all the power, features and advanced security you expect at work and home with Microsoft Office Ultimate 2007. Create professional documents quickly, connect to important information easily and work with others effectively.

Microsoft Office Ultimate Full 2007 (MSA6111) **$998**

$828 Save $111

WebCode MSA6112

Office 2004 for Mac Standard

Office 2004 for Mac gives you all the leading presentation, spreadsheet, word processing, and e-mail software editions in one convenient, specially priced package.

Full (MSA3747) **$572**

Upgrade (MSA3748) **$341**

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Student & Teacher Version

$218 Save $31

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Office 2004 Pro for Mac

Microsoft Office 2004 for Mac Professional Edition gives you all the exciting new features of Office 2004 Standard Edition, plus Microsoft Virtual PC for Mac Version 7 to keep you better connected with the PC users in your professional and personal life.

Licensing pricing available.

Full (MSA3750) **$759**

Upgrade

$484 Save $65

WebCode MSA3751

Microsoft Visio Professional 2007

Is helping IT and business professionals world-wide visualise, analyse and communicate complex information, systems and processes. Extend Office Visio 2007 programmatically or integrate it with other applications to fit your industry-specific scenarios. Develop your own custom solutions and shapes, or use those from Visio Solution Providers.

Upgrade (MSA6150) **$525**

Academic (MSA6148) **$236**

$844 Save $125

WebCode MSA6149

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3% rebate smart buy club

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Total Training for Adobe Photoshop CS2

Explore the endless possibilities of digital imaging with Total Training for Adobe Photoshop CS2. The comprehensive videos are indispensable for getting up to speed on Adobe's flagship graphics program. Learn from Photoshop Hall of Famer, Deke McClelland, as he presents 21 hours of valuable tutorials.

Training DVD
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Total Training Adobe CS 2.3 Premium Bundle

Expand your creative potential with the Creative Suite 2 Premium Edition Bundle. You'll uncover valuable tips and techniques to sharpen your skills in Photoshop CS2.3, InDesign CS2.3, Illustrator CS2.3, GoLive CS2.3, & Acrobat 7. This incredible collection of training products delivers in-depth lessons on each of the powerful programs offered in the Standard version of Adobe's Creative Suite.

Training DVD
$550 Save $119
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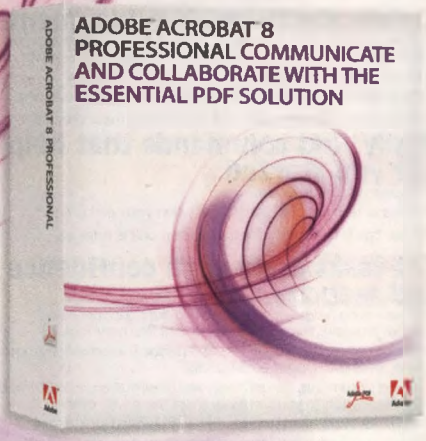
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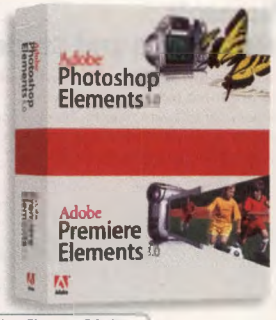

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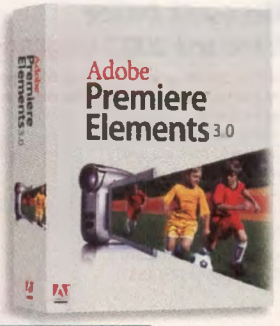

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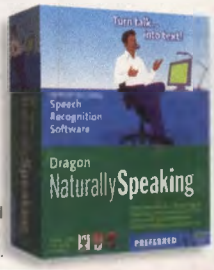

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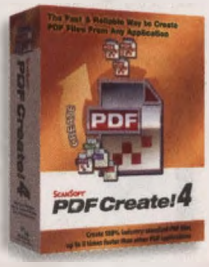

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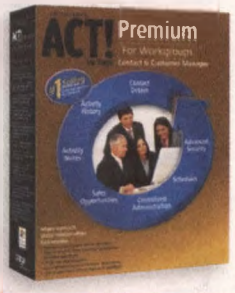

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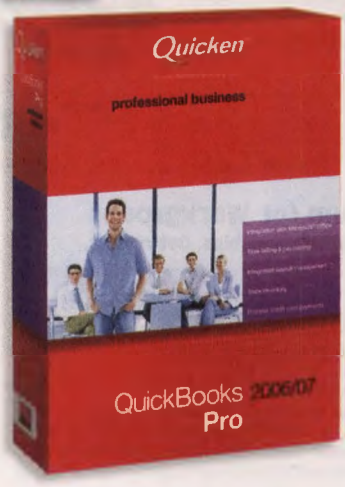

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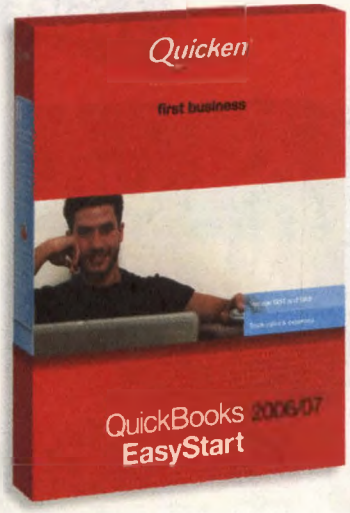

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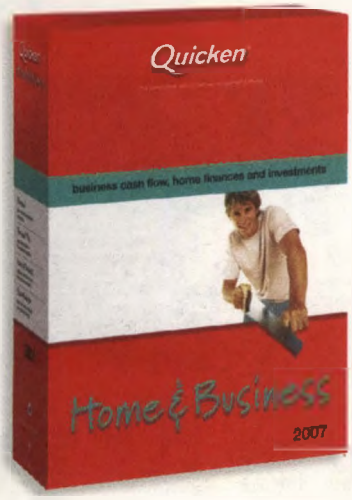

Combines the best of investing and basic business cash flow management to assist you in combining your personal and business finances, allowing you to obtain a complete picture of your financial wealth. It is designed specifically for businesses that operate using a cash-basis accounting method and do not require reporting on outstanding invoices.

- Track all of your personal and business bank accounts, credit cards, income and expenses
- Monitor all of your personal and business investments
- Create BAS and other business Tax reports
- Create Estimates and Invoices
- Use the new ASIC FIDO superannuation calculator

For the latest promotions that apply to this product please visit www.csw.com.au/promotions for full terms & conditions

Upgrade Version $177 Save $22
WebCode QUI0123

Full Version $390 Save $39
WebCode QUI0122

Retail Starter Kit 2006/07 Hard Bundle

If you are opening your store for the first time, or upgrading from a cash register, then Quicken's Retail Starter Kit is what you need. Finding the right software is one thing but then having to find the point of sale hardware that is compatible with your software is another. The Retail Starter Kit has been designed to make getting started easy.

Included:

- QuickBooks Plus 2006/07 for your inventory, customer account, accounting and reporting requirements
- Retail Point of Sale 2006/07 for fast sales processing at the front of store
- Thermal receipt printer
- Cash drawer
- Barcode scanner

Barcode Scanner

Thermal Receipt Printer

A Cash Drawer

For the latest promotions that apply to this product please visit www.csw.com.au/promotions for full terms & conditions

$865 Save $134
WebCode QUI0113

QuickBooks Accounting 2006/07

A software package for small businesses that don't need payroll or stock tracking, but need more than just "money-in" and "money-out". Growing businesses will benefit from exciting new timesaving features and powerful functionality.

Features & Benefits

- Manage your business more effectively
- Easy to learn and use
- Easy forms based interface
- Better tools to make financial decisions
- Ask help questions from nearly anywhere
- Integration with online banking
- Payment services
- Debt recovery

Full $225 Save $24
WebCode QUI0101

Quicken Retail Point of Sale 2006/07

Retail Point of Sale is retail intelligence at your fingertips, including the features you need to track all of your sales, inventory, purchase orders, customers and accounting.

Retail Point of Sale has had years of experience in this industry and comes to you with a wealth of 'functionality'. Designed to make training new staff easy and the ability to process sales faster, you will wish you had made this change a long time ago.Retail Point of Sale is suited to a variety of retail industries including sports stores, convenience stores, nurseries, auto, health and hospitality.

$448 Save $51
WebCode QUI0112

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CAD Software

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- Autodesk Inventor 11
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- AutoCAD 2007 (included as part of AutoCAD Mechanical)

*Via redemption Until 31st March 07 see www.csw.com.au for more details

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- Autodesk Architectural Desktop 2007
- VIZ Render 2007

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AutoCAD LT 2007

Enhance your productivity with AutoCAD LT software, the world's number one selling drafting and detailing product.

AutoCAD LT 2007 is better than ever. Blocks are now dynamic, express Tools for better layer management were added, and drafting enhancements abound. Now the tasks you perform every day are streamlined with just one thing in mind, boosting productivity. With full DWG file format compatibility, and access to attached drawings, you've never experienced a more efficient design process.

HOT PRICE

Upgrade $814 Save $86
WebCode AUT0116

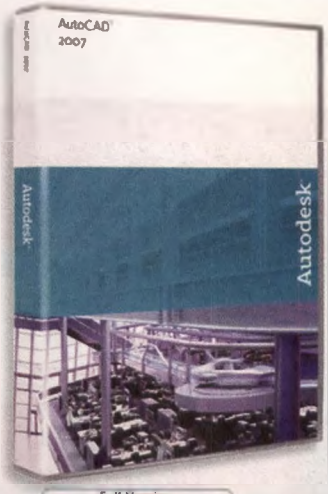
Full Version $1869 Save $331
WebCode AUT0115

AutoCAD 2007

Design, visualize, and document your ideas clearly and efficiently with AutoCAD software. From conceptual design through drafting and detailing, AutoCAD 2007 enables you to explore ideas like never before. Create, edit, and develop design alternatives using realistic solids and surfaces in an updated design environment. Communicate your ideas with powerful sketch, shadow, and rendering tools, including intuitive walk-through animations. Then turn your concepts into a set of documents with the new section and flatten functionality. It's all here, whether you're creating, exploring, managing, or communicating, AutoCAD® keeps you on time, on budget, and on track.

AutoCAD Subscription for new seats also available.

AutoCAD Upgrades now include subscription, price on application.



Academic $440 Save $55
WebCode AUT0118

Full Version $6521 Save $519
WebCode AUT0117

AutoSketch 9

Create precision drawings quickly and accurately – from conceptual sketches to product specifications, electrical details to floor plans, and much more.

AutoSketch software provides a complete set of CAD tools for creating professional-quality precision drawings. Two-minute tutorials get you up and running fast. A Microsoft Windows XP like interface provides a familiar environment for straightforward drafting. Content libraries give you the simplicity of ready-made, drag-and-drop content. And DWG format compatibility means you can create and share industry-standard drawings from the get-go.

$220 Save $22
WebCode AUT0077

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Call 1300 658 600 or visit www.csw.com.au as prices may change due to the daily fluctuations and online discounts. Save price is calculated off the RRP

Autodesk

Sony Photo Go

If your digital photo collection is growing out of control, Photo Go™ software can get you organized. Photo Go automatically imports pictures stored on your digital camera and computer so you can easily view, edit, catalog, and share your photos. Photo Go includes editing and enhancement tools to fix red eye, rotate and crop photos, and more.

$63 Save $7
WebCode SON0061

Sony DVD Architect Studio 4

Easily create professional-looking DVDs, even stunning widescreen productions, on your home computer. Simply drag and drop to start building your next masterpiece. Author home movies, multimedia photo albums, and music compilations on DVD complete with dazzling menus, special features, and custom soundtracks.

$88 Save $11
WebCode SON0062

Sony Cinescore

Cinescore software automatically generates fully composed, multigenre production music using royalty-free themes in a variety of popular styles. Arrange your media, then create dynamic and effective musical tracks for movies, slideshows, commercials, and radio productions with a single click. Customisable, user-defined settings yield an unlimited number of musical choices.

$295 Save $34
WebCode SON0058

Sony ACID Music Studio 6

It's easy to create and share your own music with ACID Music Studio software. Over 1,700 loops for building original songs, remixes, and soundtracks. Record, edit, and mix unlimited tracks of audio and MIDI. Enhance songs with professional audio effects. Burn your own CDs or export to popular formats.

Academic (SON0049) $110

$149 Save $20
WebCode SON0043

Sony Sound Forge Audio Studio 8

Sound Forge Audio Studio software is everything you need to produce professional-quality audio on your home computer. Record just about anything, edit and restore audio, burn your own CDs, create streaming media & convert audio files - all using simple commands such as cut, copy, and paste. Includes exclusive *Show Me How* interactive tutorials.

Academic (SON0056) $121

$149 Save $20
WebCode SON0042

Sony Vegas Movie Studio+DVD Platinum 7

With Vegas Movie Studio+DVD Platinum Edition you can import and edit video in nearly any format including HDV. Drag and drop to create movies and slide shows with effects, transitions, and music. Share movies on DVD, PSP™, iPod®, and Imore. Learn as you go with Show Me How interactive tutorials.

Standard (SON0045) $143

HDV/DVD Camcorder Compatable

$198 Save $41
WebCode SNY1024

Crystal Reports XI Professional Upgrade

New Crystal Reports® XI is designed to increase productivity and reduce the time spent designing, managing and delivering reports via the web. New features enable you and your end users to experience high quality viewing, printing, and exporting with less effort.

Full (SCR0332) $749

$385 Save $21
WebCode SCR0333

Crystal Reports XI Developer Upgrade

New Crystal Reports® XI is designed to increase productivity and reduce the time spent designing, managing and delivering reports via the web. New features enable you and your end users to experience high quality viewing, printing, and exporting with less effort.

Full (SCR0324) $895

$471 Save $31
WebCode SCR0325

Crystal Reports XI Standard

New Crystal Reports® XI is designed to increase productivity and reduce the time spent designing, managing and delivering reports via the web. New features enable you and your end users to experience high quality viewing, printing, and exporting with less effort.

$295 Save $16
WebCode SCR0334

Crystal Xcelsius 4.5 Professional

Revolutionise Excel spreadsheets with the award-winning Crystal Xcelsius. Point and click to create engaging business presentations filled with dynamic charts, vibrant graphs, and interactive visual analytics. Use visual modeling to analyse multiple "what-if" scenarios and peek into your company's potential financial future. Communicate results to colleagues with one-click integration into PowerPoint, Outlook, PDFs, and the web. Steal the show and see your business in a new light.

Full
$768 Save $21
WebCode SCX0006

Borland Delphi 2006 Enterprise

Delphi Enterprise is designed for small to medium-sized organizations and advanced individual developers who develop business-critical software with high performance database server requirements.
New in Delphi 2006, the Enterprise edition includes key ECO III features that allow developers to rapidly develop Enterprise intranet Web applications with object-relational mapping and transparent database persistence.

Full (BOR0150) $3620

Upgrade
$2166 Save $110
WebCode BOR0137

Borland Delphi 2006 Professional

Delphi Professional is designed for individual developers, ISVs, and smaller organizations building desktop and Web applications with local database connectivity. New in Delphi 2006, the Professional edition now includes select ECO features that provide common desktop application services such as object-relational mapping and transparent local xml object persistence.

Full (BOR0151) $1587

Upgrade
$666 Save $37
WebCode BOR0136

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McAfee Total Protection for Small Business

The last security decision a small business will ever need to make

Stop juggling standalone products. Switch to our automated, all-in-one, software-as-a-service. McAfee® Total Protection for Small Business gives you continuous, up-to-date protection. Management is powerful and easy from our web-based management console with automatic protection 24x7, even for PCs not connected to the Internet.

Includes Desktop Security :
- Anti-virus,
- Anti spyware
- Desktop Firewall

1 Year Subscription including 1 year gold Support

25 User (MCF2175) $992

10 User **$438** Save $112
WebCode MCF2174

McAfee PC Protection Plus

Protect Your PC and Life Memories

McAfee PC Protection Plus provides essential protection while surfing the Web and downloading files. It also makes it easier than ever to back up and restore photos, music, videos and other important files.

5-in-1 Protection

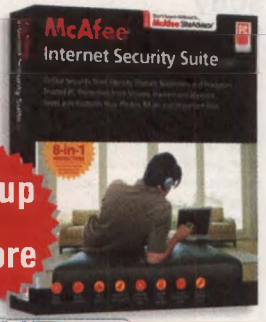
McAfee PC Protection Plus is 5-in-1 protection for your PC and important files. Relax knowing that you always have the latest protection updates, software upgrades and enhancements automatically delivered to you. Stops Viruses. Automatically blocks, cleans and removes viruses so you can surf the Web and download files safely.

$57 Save $13
WebCode MCF2141

McAfee Internet Security 2007 - 8-in-1 Protection

McAfee Internet Security Suite is 8-in-1 protection for your PC, important files, identity and online experience. Relax knowing that you always have the latest protection updates, software upgrades and enhancements automatically delivered to you.

- Stops Viruses. Automatically blocks, cleans, and removes viruses so you can surf the Web and download files
- Blocks Spyware. Blocks spyware before it can install on your computer, and removes existing spyware
- Stops Hackers. Protects and conceals your computer from hackers so you can surf the Internet safely
- Improves PC Performance. Cleans clutter off your computer to keep it healthy and running smoothly
- Backs Up & Restores Files. Automated backup and one-click restore ensures that you don't lose photos, music and important files
- Secures Your Identity
- Prevents Spam & E-mail Scams
- Protects Children Online



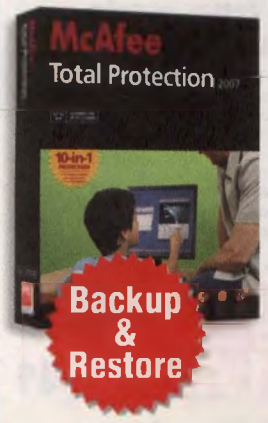
Upgrade **$49** Save $10
WebCode MCF2147

Full **$79** Save $21
WebCode MCF2144

Full - 3 User **$105** Save $25
WebCode MCF2146

McAfee Total Protection 10-in-1 Protection

Peace of Mind for your Entire Family



- Offers 10 in 1 Protection and complete online and PC security for your entire family
- Stops Wireless Intruders, Identity Thieves, Spammers, and Predators
- Protects your PC from viruses, hackers and spyware
- Backs Up and Restores your photos, music and important files
- Safeguards your identity and online experience so you can surf the Web, shop, bank, e-mail and instant message safely
- Intercepts prohibited Web sites, unwanted activity and offensive pictures to keep your family safe
- Blocks hackers from attacking your wireless network, safeguarding your personal information and transactions
- Automates file and printer sharing among trusted friends and family

1 User **$105** Save $25
WebCode MCF2150

3 User **$128** Save $32
WebCode MCF2151

McAfee Total Protection for Small Business + Netgear Super G Wireless ADSL Router (DG834GT) Bundle

The last security decision a small business will ever need to make

Stop juggling standalone products. Switch to our automated, all-in-one, software-as-a-service. McAfee® Total Protection for Small Business gives you continuous, up-to-date protection. Management is powerful and easy from our web-based management console with automatic protection 24x7, even for PCs not connected to the Internet.

Includes Desktop Security :
- Anti-virus,
- Anti spyware
- Desktop Firewall

1 Year Subscription including 1 year gold Support

5 User **$348** Save $131
WebCode MCF2176

McAfee Total Protection for Small Business Advanced

Are you sure your business is getting all the coverage it needs?

The last security decision you will ever need to make. Headache-free, broad-coverage security isn't just a dream anymore. Stop juggling standalone products. Switch to our automated, all-in-one, software-as-a-service. McAfee® Total Protection for Small Business gives you continuous, up-to-date protection. Management is powerful and easy from our web-based management console with automatic protection 24x7, even for PCs not connected to the Internet.

Includes ENHANCED Desktop Security :
- Anti-virus
- Anti spyware
- Desktop Firewall
- Mail Server Anti-Virus
- Hosted Mail Server Security with Spam Filtering managed by McAfee

1 Year Subscription including 1 year gold Support Total Protection Advanced requires that you own a unique email domain and a mail server with a static IP address

5 User **$369** Save $81
WebCode MCF2170

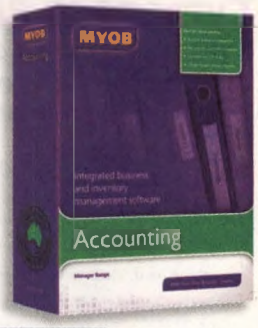
10 User **$698** Save $152
WebCode MCF2171

10 User **$1666** Save $334
WebCode MCF2172

MYOB Accounting 16

Complete Inventory and Business Management software for Australian businesses.
For owner operators. MYOB Accounting helps you manage your businesses requirements including inventory; by tracking, back-ordering, buying and building what you need, how you need.
MYOB Accounting has been designed and built for Australian conditions by Australia's leading business software supplier to allow you to:

- Control inventory
- Process sales and purchases
- Manage receivables and payables
- Handle your banking requirements
- Track GST and BAS
- Prepare budgets
- Email your quotes and invoices
- Comprehensive business reporting and more



Full $269 | Save $80 | WebCode MYB0061

Upgrade $219 | Save $20 | WebCode MYB0067

MYOB Accounting Plus 16

Business, payroll and time management software for Australian businesses with employees.
MYOB Accounting Plus is Australia's leading choice for business with employees.
Proudly developed and designed for Australian businesses, MYOB has created an easy to use program with integrated payroll, time billing and inventory management software which allows you to:

- Automate your payroll
- Bill for your time
- Control inventory
- Process sales and purchases
- Manage receivables and payables
- Track GST and BAS
- Prepare budgets
- Email your quotes and invoices
- Comprehensive business reporting and more

Full $457 | Save $138 | WebCode MYB0062

Upgrade $288 | Save $61 | WebCode MYB0068

MYOB Premier 10

Powerful multi-user software from Australia's choice and owned MYOB.
Issued with a three-user licence and with further licences available, MYOB Premier gives you the power to manage even the most complex business. Get the complete set of business, inventory, payroll and management features as found in MYOB Accounting Plus, plus more!

MYOB Premier enables Australian businesses to:

- Handle foreign currency transactions and accounts
- Automate their payroll and bill for time
- Manage multi level pricing on inventory
- Analyze their business with detailed powerful reports and more

MYOB Premier comes with a 12 month subscription to MYOB Cover. A subscription that includes FREE phone, fax and email support, as well as automatic software upgrades and payroll updates to government changes and more...

Full $1282 | Save $213 | WebCode MYB0064

MYOB FirstEdge

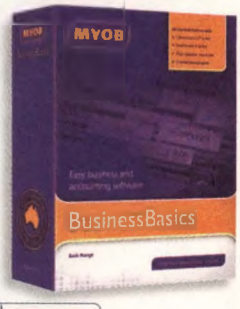
For an Australian small business using a Mac. From one easy program, track your GST and prepare your BAS, invoice your sales and manage your expenses and understand your business with detailed reports and more. The only solution for Australian businesses who want to control their business.

- Process sales and purchases,
- Manage receivables and payables
- Track GST and BAS
- Email your quotes and invoices
- Comprehensive business reporting and more

Full $125 | Save $24 | WebCode MYB0005

MYOB BusinessBasics

With MYOB BusinessBasics you'll save lots of time and effort as it keeps your banking,sales and contact information in one easy to use system.
Issue professional-looking tax invoices, track all money coming in and out, and keep a detailed history of your business transactions. All your information is organised and easy to access so you can spend more time on your business, not on the books. Ideal for small or home based businesses!



Full $125 | Save $24 | WebCode MYB0004

MYOB AccountEdge 6

MYOB AccountEdge is Australia's leading choice for businesses with employees working on a Mac.

- Automate your payroll and bill for your time
- Handle foreign currency transactions and accounts
- Control inventory, sales and purchases.

$525 | Save $70 | WebCode MYB0065

MYOB Accounting Plus with Cover 16

MYOB Accounting Plus with Cover includes all the benefits of Accounting Plus, along with a 12month subscription to MYOB Cover which includes FREE product support via phone, fax and email and automatic software upgrades.

$724 | Save $125 | WebCode MYB0063

MYOB Retail Manger 9

- Fast customer service
- Advanced Inventory management
- Manages promotions easily
- Includes 12 months of 7 day a week support & updates
- Integrates with MYOB Accounting, Accounting Plus & Premier

$1653 | Save $337 | WebCode MYB0060

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Small Business Protection

Why Symantec?

Symantec is the market leader in Windows security, backup and recovery so we can provide complete protection of your systems, data and applications. Because it's not just your Windows system we're protecting, it's your business.

Symantec Backup Exec 11d

Symantec Backup Exec 11d for Windows Servers is the industry-leading Microsoft® Windows data protection and recovery solution designed for disk and tape, providing comprehensive, cost-effective, and certified backup and recovery—now including continuous data protection for Microsoft Exchange, file servers, and desktop and laptop workstations. Symantec Backup Exec 11d revolutionizes data protection by eliminating backup windows and recovering data in seconds. Enhancing data security with encryption and protecting both 32-bit and 64-bit systems, Backup Exec is the perfect fit for today's Windows based businesses.

- Trusted and reliable
- Eliminates backup windows
- Enables faster backups
- Recovers individual files, Exchange messages/ mailboxes,and SharePoint documents in seconds
- Enables end user file retrieval—without IT intervention
- Complete disk- and tape-based data protection
- Reduces operational cost in Microsoft Windows environments
- Increases Windows application availability
- Offers simple, scalable, centralized management

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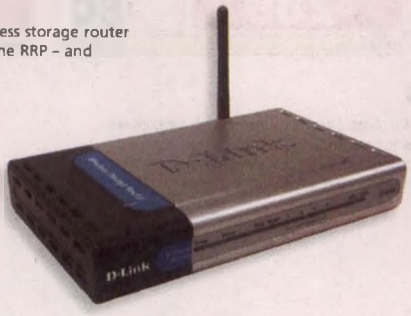
Symantec Business Protection Pack

Symantec Client Security with Groupware Protection 3.1 (10 user license) + Bonus D-Link Wireless Storage Router

Symantec Client Security with Groupware Protection proactively protects your business from viruses, spyware, hackers, and spam by safeguarding your desktop computers, file servers, and email server against both known and emerging security risks. Integrated graphical reporting and centralized management tools facilitate automatic, timely protection and make it easy to secure your network from a single location.

Symantec Client Security with Groupware Protection 3.1 (10 User)

- Proactively protects your business from viruses, spyware, hackers and spam
- Protect servers, desktops, laptops and email
- Windows protection
- BONUS D-Link DL-624S high speed wireless storage router **$1285** combined value, Save **$296** off the RRP – and protect your business



$1059 Save **$110**

WebCode SYM9893

Two great offers from Symantec, D-Link and Maxtor.

Ideally suited for small businesses with 5 to 20 PCs.

Symantec Business Data Protection Pack

Symantec Backup Exec System Recovery Windows Small Business Server Edition + Bonus Maxtor 320GB Storage Drive

Dramatically minimize downtime by rapidly recovering entire systems to dissimilar hardware platforms or even to virtual environments. When disaster strikes, you can quickly restore failed systems to a specified point-in-time without taking hours to manually rebuild and restore systems.

Symantec Backup Exec System Recovery Windows Small Business Server Edition

- Restore your systems anytime, from anywhere to virtually any device.
- A Set and Protect automated zero touch backup solution - ideally suited for small businesses.
- BONUS Maxtor Personal Storage 3200: 320GB Storage Drive
- Windows Protection

$1849 combined value , Save ***$749*** on RRP

$942 Save **$47**

WebCode VEB2380

Call 1300 658 600 or visit www.csw.com.au as prices may change due to the daily fluctuations and online discounts. Save price is calculated off the RRP

Norton 360

Norton 360™ delivers all-in-one security for everything computer users care about, providing automatic protection from fraudulent Web sites, identity theft, viruses, spyware, and other online threats. It also helps keep your PCs tuned for peak performance and protects important files by allowing you to back them up automatically and restore them at any time.

- Combines the best of ALL Norton products
- Safeguards your banking online
- Protects you from identity theft
- Protects you from crimeware, spyware and viruses
- Keeps you system running optimally with PC tuneup
- Automatic backup and restore
- Upload precious files and Symantec will secure them for you
- 24/7 live online support

Product available from March 15

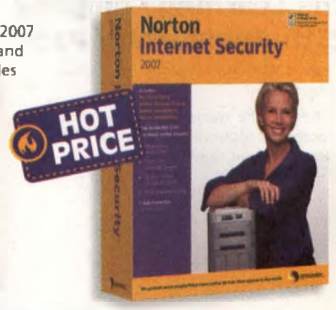
$118 Save $12
WebCode SYM9740

Norton Internet Security 2007 3 User

Stay protected from the latest online threats when connecting to the Web. Norton Internet Security™ 2007 is always running in the background to detect and block spyware, viruses, worms, phishing Web sites, and hackers before they can cause harm. In addition to protection updates, Norton Internet Security provides new product features as available throughout your service subscription.

- Blocks online identity theft
- Detects and eliminates spyware
- Removes malware, viruses and internet worms
- Protects against hackers
- Includes new smart firewall

Single user (SYM9719) $80



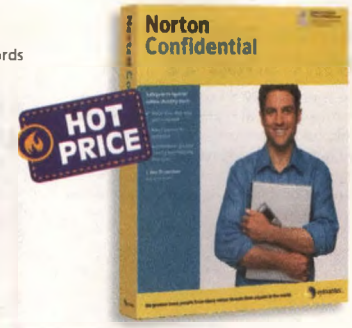
$117 Save $12
WebCode SYM9720

Norton Confidential

Norton™ Confidential lets you bank, shop, and browse online with confidence, safeguarding passwords and other personal information from online identity theft. Prior to login, purchase, or other online interaction, it inspects for threats and prevents dangerous or identity-stealing Web sites or programs on your PC from obtaining your confidential information.

- **Phishing Protection** – blocks or warns you from visiting known or suspected phishing Web sites
- **Crimeware protection** – protects you from known and unknown keystroke loggers and other malicious programs designed to steal your identity
- **Web site authentication** – confirms the authenticity of high-profile banking, shopping and other sites which require financial or other personal information

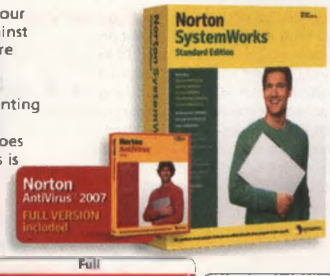
Mac User (SYM9731) $66



PC User
$66 Save $14
WebCode SYM9729

Norton SystemWorks

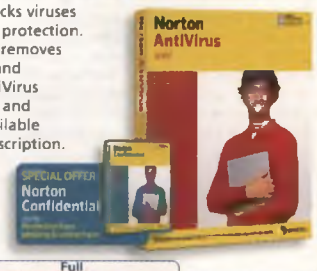
Defend and enhance the performance of your computer with Norton SystemWorks.™ Its keeps your computer safeguarded against damaging virus and spyware attacks. This multi-purpose solution also keeps your computer healthy by preventing and solving many common problems. And if trouble does occur, Norton SystemWorks is there to help you recover.



Full
$43 Save $7
WebCode SYM9722

Norton AntiVirus 2007 + Norton Confidential

Norton AntiVirus™ 2007 blocks viruses and spyware with advanced protection. It automatically detects and removes viruses, unwanted adware, and Internet worms. Norton AntiVirus provides protection updates and new product features as available throughout your service subscription.



Full
$67 Save $13
WebCode SYM9739

Norton Save & Restore Bundle

- Automatically safeguards photos, videos, music, documents & essential system files
- Backs up an entire drive or just selected files and folders
- Recovers your data even when your O/S won't start
- Makes incremental backups, saving space and time
- Encrypts backups for added security
- Makes backups on the fly to almost any media

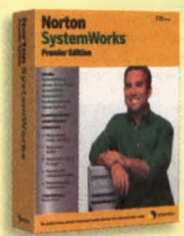
Includes 5GB Seagate Pocket Drive

$195 Save $25
WebCode CCG0290

Norton SystemWorks Premier

Optimize your computer experience with Norton SystemWorks 2006 Premier. This powerful solution offers advanced protection, automatically backing up everything on your computer. It also prevents many problems, keeping your computer healthy and optimized. And when trouble does occur, Norton SystemWorks Premier is there to help you repair the damage and recover your system. Its antivirus protection- the most trusted on the planet protects you from viruses, worms, Trojan horses, and dangerous spyware.

5 User (SYM9724) $214
10 User (SYM9725) $358



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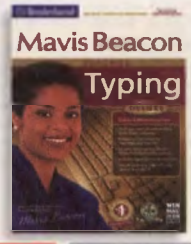
Can you type as quickly as you think? If not, you're letting clumsy keyboard skills dull your competitive edge. Tackle the problem head-on with Mavis Beacon – the leading name in typing tutorials for 10 years running.



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5 Award-Winning Favourites that Make Learning Fun!

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- Zoombinis Mountain Rescue
- Reader Rabbit Kindergarten
- Kid Pix 4 Deluxe
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Have fun raising the fitness of your brain to perform better at everyday tasks. Play a daily range of activities in the 10 minute "Daily Brain Training" and review your progress, or just play your choice of activities for the challenge.

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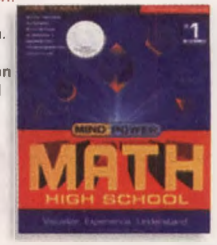

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Pinnacle Studio 10 for Windows

PC Magazine's Jan Ozer takes on the most popular Windows-based DV editing software in classic Visual QuickStart style. If you want to explore both video-editing and DVD authoring, there's now an affordable tool-Pinnacle Studio 10.

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Acronis True Image 10 Home

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- Protect your PC applications
- Schedule backups automatically
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Absolute Beginner's Guide to Windows Vista is not just about using Windows, but also about how to live in a digital world, where you can share pictures, play and download music, communicate with others and more!

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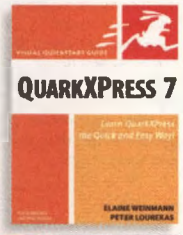
This handy Visual QuickStart Guide offers the quickest way to begin working with QuarkXPress 7, including all the new graphic effects, Job Jackets, expanded output options, and other great workflow enhancements. Bestselling authors Weinmann and Lourekas use task-based, step-by-step instruction and loads of visual aids to provide a solid base of skills.



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The Sims 2 is the sequel to the best-selling virtual life game from Maxis and Electronic Arts. The Sims 2 comes to the PSP handheld entertainment system, Nintendo DS, and Game Boy Advance bringing with it all the addictive, open-ended gameplay of the fastest-selling PC game of all time.

$14 Save $66
WebCode EAG8025

Madden NFL 2006 PSP

Experience everything you've come to expect from the most groundbreaking franchise in sports video game history in a whole new way when Madden NFL 06 comes to the PSP handheld.

$15 Save $35
WebCode EAG8009

SSX on Tour PS2

SSX On Tour continues EA Sports Big extreme snowboarding series. The game features new characters and skiers that have different tricks and abilities than the snowboarders. Create a rider or skier and build a career as you progress from a lope-side wannabe to a black-diamond-dominating rockstar.

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WebCode EAG2084

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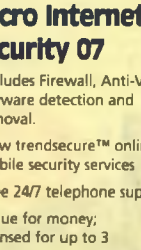

$82 Save $18
WebCode MAN0070

Need for Speed: Most Wanted PC

Need for Speed Most Wanted is a street racing game involving high speed police chases. Wake up to the smell of burnt asphalt as the thrill of illicit street racing permeates the air. From the makers of the hit Need for Speed Underground series.

$18 Save $52
WebCode EAG1115

James Bond: From Russia with Love PS2

From Russia With Love is the first game to put players in the universe of the classic James Bond films. Set in the original 60's Bond era, the game features movie-based missions as well as original, action-intensive sequences.

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Black Xbox

Taking place in Eastern Europe, Black features huge Hollywood-style gun battles. BLACK is the explosive first-person shooter from the award-winning Criterion Studio, makers of the hit Burnout series. The game pays homage to every adrenaline-fuelled Hollywood blockbuster to deliver hours of bang, boom, and rat-a-tat

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Ulead DVD MovieFactory 5 Plus

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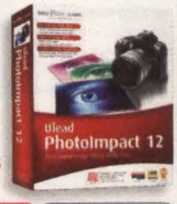

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FileMaker Pro 8.5 Academic

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FileMaker Pro 8.5 is the newest version of the #1-selling easy-to-use database software that helps you manage people, projects, assets and more – the easy way!

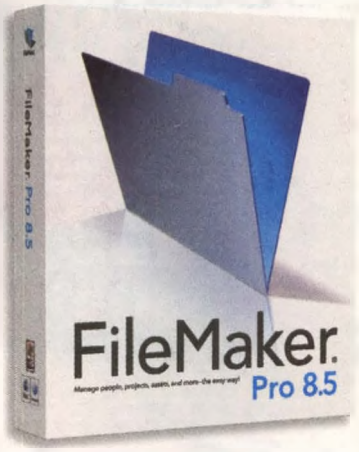
This exciting new version includes the FileMaker Web Viewer that connects your database with the Web data that you rely on everyday – instantly and automatically! Also new is native support for Intel-based Macs, a learning centre, new functions, new scripts, and more!

Here's what's new at a glance:

- FileMaker Web Viewer
- Custom Web Addresses
- Web Software Integration
- FileMaker Learning Center
- Object Functions & Scripts
- Universal Application

Upgrade (FIL1001) $261

Full (FIL1000) $453



$228 Save $21

WebCode..... FIL1002

FileMaker Pro 8.5 Advanced Academic

FileMaker Pro 8.5 Advanced replaces FileMaker Developer and includes a suite of advanced development and customisation tools, as well as all the new features of FileMaker Pro 8.5, including the breakthrough FileMaker Web Viewer that delivers information from the Web directly to FileMaker Pro 8.5 – based on your FileMaker information. Plus, you'll get native support for Intel-based Macs, an online learning centre, new functions, new scripts and more!

FileMaker Pro 8.5 Advanced includes powerful tools to:

- Design and develop databases faster and easier with Custom Menus, Tooltips, Custom Functions, and more.
- Debug and troubleshoot more efficiently using the interactive Script Debugger and powerful Data Viewer.
- Modify and maintain databases with ease using the advanced Database Design Report and File Maintenance tools.

Upgrade (FIL1007) $474

Full (FIL1006) $843

$420 Save $9

WebCode..... FIL1008

FileMaker Server 8 Academic

High-performance server software for teams of FileMaker users that want to maximise the performance and security of their shared databases while automating backups and other administrative tasks.

Includes robust, real-time database sharing, advanced security options, and powerful, remote administration capabilities so you can:

- Bring your entire team together for maximum productivity
- Increase the performance of your shared databases
- Better protect your data with robust security features

Upgrade (FIL1010) $495

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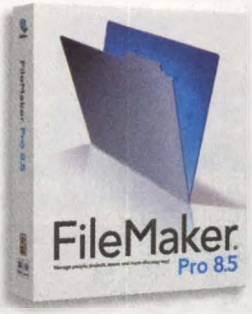

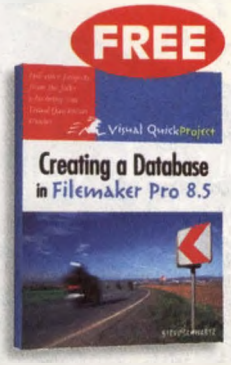

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The most convenient media management system of all time! Manage all your media with one single application! Organize your media into personalized, practical libraries. Use the smart sorting functions to combine videos, images and music into professional shows that the family can watch on their DVD players.

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- Quick & easy access to all your digital media files from the comfort of your living room using a remote control
- Integrates TV time-shifting, DVD playback, and A/V file playback
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- Complete multiple tasks concurrently
- Ultimate multimedia experience!

Video

- Easily capture video from digital camcorders, video capture/TV tuner cards
- Powerful video editing tools for movies and personal video
- Customize DVD movies: add new content, chapters & keep subtitles
- Fast and easy DVD9 to DVD5
- Support for all popular media formats including Nero Digital™ (MPEG-4)

Audio

- Rip audio CDs and create music mixes for your MP3s
- Amazing sound quality with AAC & High Efficiency AAC (MPEG-4)
- Create custom Playlists
- Pump-up your music mixes with powerful Beat Editor, Sequencer and Text II Speech converter

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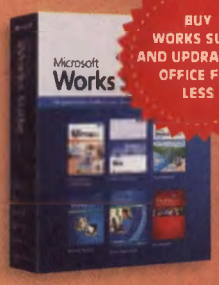

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WebCode..... COR8934

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$33 Save $17

WebCode..... POW2006

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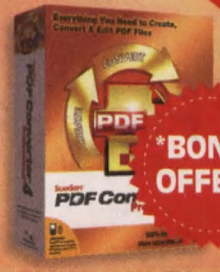
Nuance PDF Converter Professional 4

ScanSoft PDF Converter Professional 4 gives you everything you need to create, convert, view and edit PDF files.

*See page 32 for details



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